Maintenance Accountability Process

Manual

Washington State Department of Transportation
Field Operations Support Service Center
Maintenance Office

Table Of Contents

Map Manual

Page

Chapter 1 - Introduction

Background 1-1
History 1-1
Performance Budgeting Pilot Project 1-2
MAP Basics 1-2
Maintenance Accountability Process Flow Chart 1-3

Chapter 2 - Structure

Program M - Highway Maintenance & Operations 2-1
Subprograms - M1, M2, M5 2-1
Subprogram Components, Groups 2-2

Chapter 3 - Operation Numbers

Operation Numbers with Connection To MAP Activities 3-1

Chapter 4 - Performance Measures

Measuring Performance 4-1
Performance Measures 4-2
- Group 1 - Roadway Maintenance & Operations 4-2
- Group 2 - Drainage Maintenance & Slope Repairs 4-3
- Group 3 - Roadside and Landscape Maintenance 4-4
- Group 4 - Bridge & Tunnel Maintenance 4-6
- Group 5 - Snow & Ice Control 4-8
- Group 6 - Traffic Control Maintenance & Operations 4-9
- Group 7 - Rest Area Operations 4-10
- Group 8 - Support Operations 4-12
- Group 9 - 3rd Party Damage Repairs & Disaster Operations 4-13

Chapter 5 - Service Level

Service Level Effectiveness Model	5-1
Service Level by Group (Graphics)	5-2
Service Level Descriptions	5-10
Service Level Chart (Current State)	5-12
Service Level Chart (Current State & CLB Commitment)	5-13
Service Level Chart (Current Region Placeholder)	5-14
Service Level Chart (Current Area Placeholder)	5-15

Chapter 6 - Planning

MAP Priorities	6-1
Highway Categories	6-2
Highway Category Inventory	6-3
Service Level Calculation Model	6-4
Inventory Of Existing Facilities by region	6-5

Chapter 7 - Accountability

Accountability Model	7-1
Effectiveness Model	7-2
Outcome Calculation Inventory Data	7-3
Outcome Calculations by region	
Fiscal Year 98	7-4
Fiscal Year 97	7-6
Fiscal Year 96	7-8
Efficiency Model	7-10
Output Calculation Inventory Data	7-11
Output Calculations by Area	
Fiscal Year 98, M2, Groups 1,3 & 5	7-12
Fiscal Year 97, M2, Groups 1,3 & 5	7-16
Fiscal Year 96, M2, Groups 1,3 & 5	7-20

Chapter 8 - Field Data Collection

Introduction	8-1
Field Data Collection Form	8-2
Bridge Data Collection Form	8-3
Snow and Ice Data Collection Form	8-4

Chapter 1

Introduction

Introduction Chapter 1

Background

In 1996 the Washington State Department of Transportation embarked on an initiative to employ outcome based performance measures for evaluating the effectiveness of the Maintenance Program. The Maintenance Accountability Process, or MAP as it has become known, is a comprehensive planning, measuring, and managing process that provides a means for communicating to key customers the impacts of policy and budget decisions on program service delivery.

History

Previously, budgeting for the maintenance program was an incremental process, based on historical expenditures, with small additions for approved decision packages. Across the board cuts were common place because of a lack of understanding of the base program. During the 1995 Legislative session legislators struggled to understand impacts on the statewide program of several budget scenarios. WSDOT staff was unable to adequately communicate possible trade-offs and identify the impacts of several alternative investment options.

Questions About Highway Maintenance

Out of frustration, the Legislature finally decided to reduce the program budget from previously funding levels and directed WSDOT to undertake a study to evaluate the effectiveness and efficiency of maintenance and improve program accountability. WSDOT hired a consulting team lead by Dye Management Group, Inc. to complete the analysis. The consulting team completed the study in June, 1996 and provided the basis for implementation of the Maintenance Accountability Process.

The 1997 Legislative session was the first time MAP tools were utilized to support the budget request for the maintenance program. WSDOT was able to identify

investment choices and the affects of those choices on the program. WSDOT was the first agency in the state to utilize performance based budgeting. The MAP has since become a model not only for Washington State, but for many other state highway maintenance programs. Kentucky, Utah, Kansas, Montana and Alaska are also developing procedures based on the MAP concept.

Performance Budgeting Pilot Project

In 1998 the 55th Legislature placed an emphases on the accountability of state agencies through improved effectiveness and efficiency. The legislature directed all transportation agencies to establish a performance based budgeting process. An initial step would be for each agency to designate a program to pilot performance budget tools for analysis and development of their budget for the 1999-01 biennium. The Washington State Department of Transportation selected the M2 subprogram of the Highway Maintenance and Operations (M) Program as the pilot project because of the early success with the MAP.

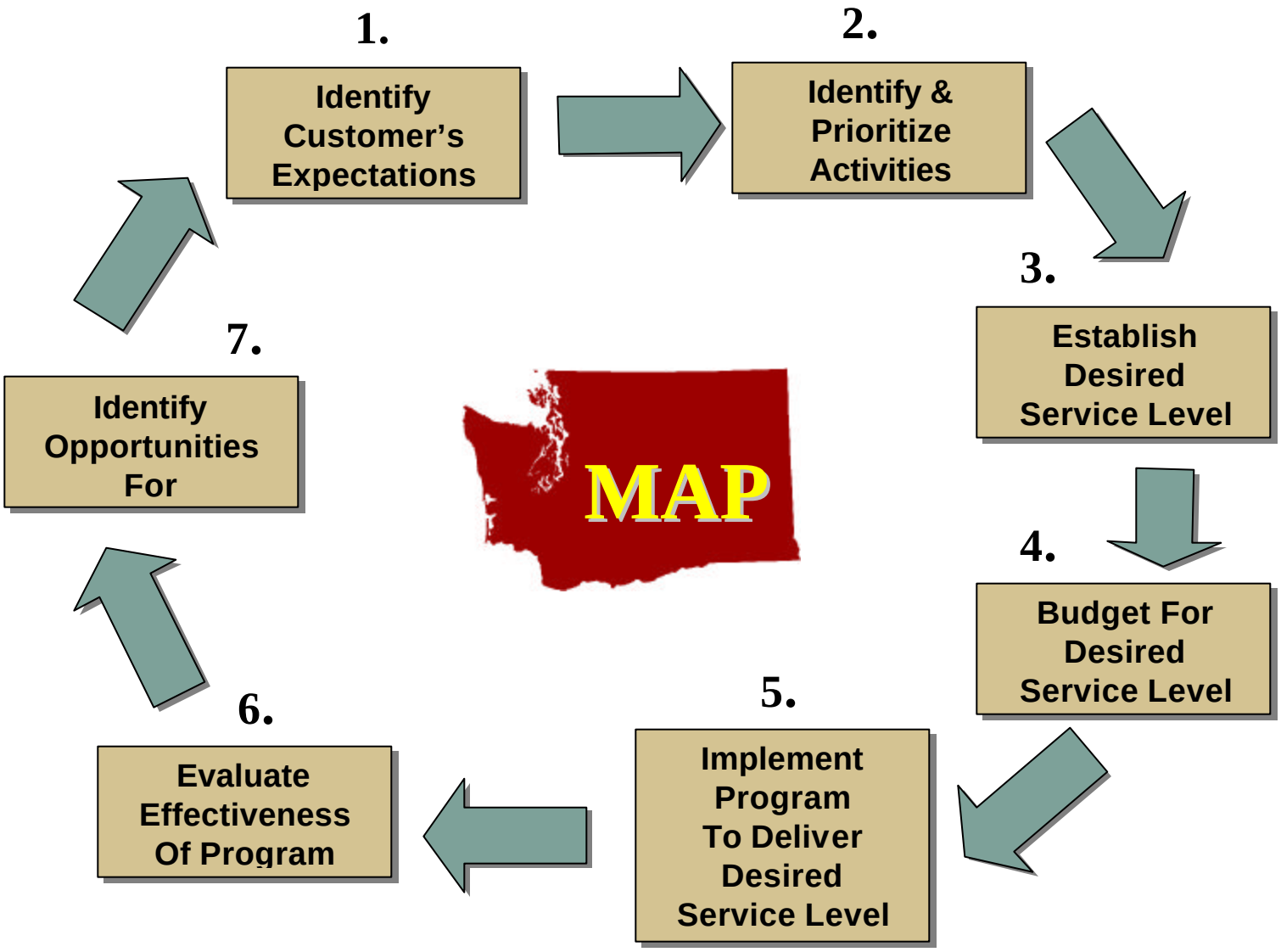
MAP Basics

The MAP is a continuous improvement process that parallels the Department's seven step Quality Blue Print, and is consistent with WSDOT's Strategic Plan. It provides the tools to link strategic planning, the budget, and maintenance service delivery. It essentially provides the means for evaluating the effectiveness of the program, and program accountability.

Program analysis is accomplished through the use of a statistically valid, random sampling procedure that record results of work accomplished with key maintenance activities. Utilizing outcome based performance measures and a service level scale (A through F), service delivery results can be rated against established benchmarks. Over time, service levels trends can also be charted. One of the most important MAP tools is the Service Level Investment Choices Model. The Investment Model identifies the investment needed to achieve the current service level, and estimates the investment threshold for achieving A through F service levels scenarios. One other key tool is the MAP Priority Matrix. The Matrix prioritizes maintenance activities and ranks them according to their contribution to maintenance program goals identified by field maintenance personnel.

The MAP, through its component pieces, provides WSDOT the means to clearly communicate to its key customers, the Legislature, the Governor, the Transportation Commission and ultimately the tax paying public, the impact of policy and budget decisions on program service delivery.

Maintenance Accountability Process



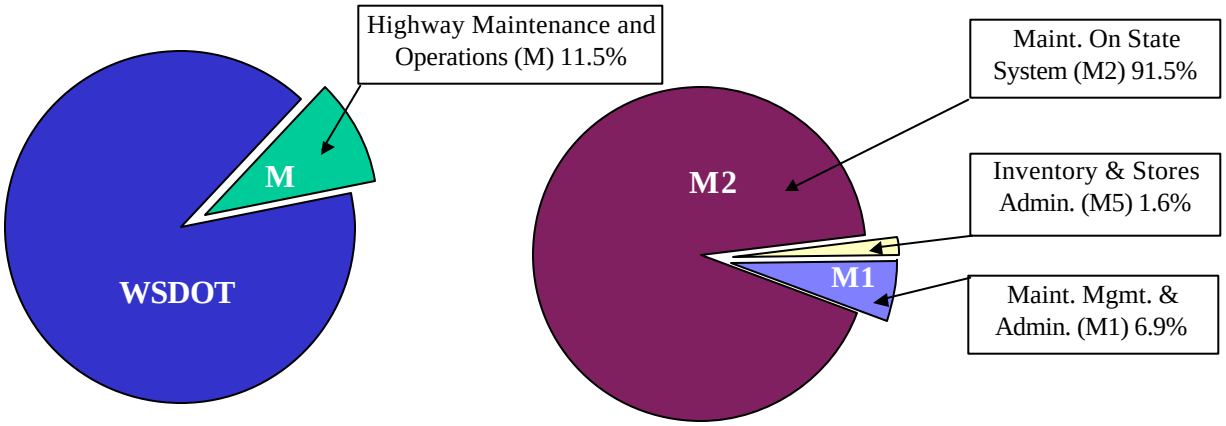
Chapter 2

Structure

Program M - Highway Maintenance and Operations

The State Highway Systems Plan Service Objective: Maintain and operate state highways on a daily basis to ensure safe, reliable, and pleasant movement of people and goods. The state highway system consists of approximately:

7,000 system miles of highway
10 year-round mountain passes
41 rest areas
3,100 bridges



Subprograms

M1 - Maintenance Management and Administration (6.9% of M)

All expenditures of a management or administrative nature that are directly related to maintenance and operation of the highway system, and cannot be directly distributed to specific maintenance activities.

M2 - Maintenance On State System (91.5% of M)

All expenditures for activities related to maintenance and operation of the highway system and associated facilities so that it substantially retains its original intended use and function.

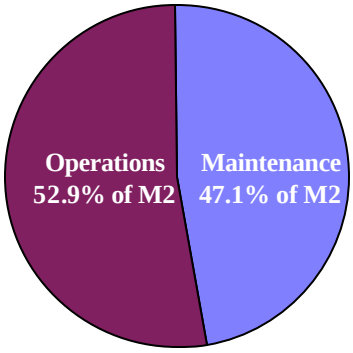
M5 - Inventory and Stores Administration (1.6% of M)

All expenditures for management and administration of necessary materials and supplies for maintenance and operations of the highway and associated facilities. This includes ordering, receiving, storing, issuing, and disposing of items such as: signs, stock piled sand and gravel, guardrail posts, traffic cones, and herbicides.

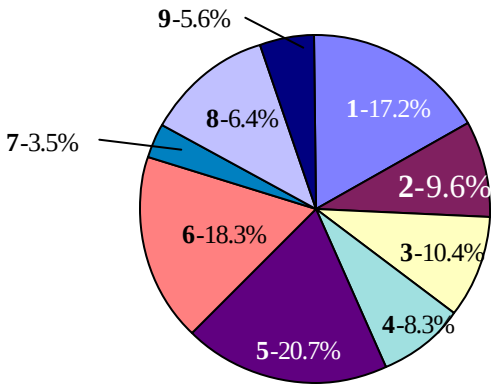
M2 Subprogram - Maintenance On State System

M2 Subprogram, Maintenance On State System is divided into two components, distributed across nine basic work groups.

M2 Components



M2 Groups



Components

(1) Maintenance (47.1% of M2)

Work that is performed to care for and maintain the highway and associated facilities so that it substantially retains its original intended use and function.

Examples:

1. Pavement patching and repairing pot holes
2. Cleaning ditches and culverts so they retain design capacity for drainage.
3. Controlling vegetation so it does not block signs or obstruct intersections.
4. Painting stripes on the roadway surface

(2) Operations (52.9% of M2)

Those activities performed to operate the highway and associated facilities. Generally these activities affect the reliability of a direct service to customers using the highway, a facility, or a system.

Examples:

1. Rest area operations
2. Reversible lane gate, highway lighting and traffic signal system operation.
3. Snow and ice control to keep highways operational during winter storms.
4. Disaster operations to keep highways or detours operational during a disaster.

Groups

(1) Roadway Maintenance & Operations (17.2% of M2)
(2) Drainage Maintenance & Slope Repair (9.6% of M2)
(3) Roadside & Landscape Maintenance (10.4% of M2)
(4) Bridge & Urban Tunnel Maint. & Operations (8.3% of M2)
(5) Snow & Ice Control Operations (20.7% of M2)
(6) Traffic Control Maintenance & Operations (18.3% of M2)
(7) Rest Area Operations (3.5% of M2)
(8) Training & Testing (6.4% of M2)
(9) 3rd Party Damages & Disaster Operations (5.6% of M2)

Chapter 3

Operation Numbers

Operation Numbers

Operation Number Connection to MAP Activities

		Unit
Group 1	**Roadway Maintenance and Operations**	
1A1	***Pavement Patching and Repair***	
1111	MECHANICAL PATCHING GRADER	TONS
1112	MECHANICAL PATCHING PAVER/BOX	TONS
1122	MANUAL PATCHING	SQ FT
1134	PAVEMENT MILLING/FULL DEPTH PATCHING	TONS
1147	CHIP SEAL PATCHING	100 GALS
1148	PATCHING - DURA PATCHER	GALLON
1173	PATCHING WITH SUBGRADE REPAIR	SQ FT
1199	OTHER ROADWAY MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE
1A2	***Crack Sealing***	
1161	CRACK & JOINT SEALING	LBS
1A3	***Shoulder Maintenance***	
1142	GRADE/RESHAPE SHOULDER	SHLDR MILE
1143	SHOULDER BUILDUP REMOVAL	CU YD
1A4	***Sweeping and Cleaning***	
1181	SWEEPING & CLEANING PAVEMENT - PICKUP BROOM	SHLDR MILE
1182	SWEEPING AND CLEANING RAISED ISLANDS - MANUAL	NONE
1183	SWEEPING & CLEANING PAVEMENT/SIDE CASTING OR FLUSHING	SHLDR MILE
1184	SWEEPINGS RECYCLING	CU YD
1B1	***Safety Patrol***	
1185	SECTION, SAFETY AND DEBRIS PATROL	EQUIP MILE
Group 2	**Drainage Maintenance and Slope Repair**	
2A1	***Maintain Ditches***	
1311	DITCH MAINTENANCE	LINEAR FT
1329	CHANNEL MAINTENANCE	LINEAR FT
1399	OTHER DRAINAGE MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE
2A2	***Maintain Culverts***	
1331	CULVERT CLEANING, MARKING, AND INSPECTION– MANUAL	EACH
1332	CULVERT CLEANING – MECHANICAL	EACH
1333	CULVERT REPAIR OR REPLACEMENT	EACH
2A3	***Maintain Catch Basins and Inlets***	
1341	CATCH BASIN MARKING AND ROUTINE MAINTENANCE	EACH
1342	CATCH BASIN MECHANICAL CLEANING	EACH
1343	CATCH BASIN/MANHOLE REPAIR OR REPLACEMENT	EACH
1346	JERSEY BARRIER SCUPPER CLEANING	LINEAR FT
1352	VACTOR WASTE RECYCLING/DISPOSAL	CU YD
2A4	***Maintain Detention/Retention Basins***	
1344	DETENTION/RETENTION BASIN MAINTENANCE	EACH
1345	UNDERGROUND RETENTION/DETENTION FACILITY MAINTENANCE	EACH

Operation Number Connection to MAP Activities

		Unit

Group 2 Drainage Maintenance and Slope Repair

2A5 Slope Repair

1211	SLOPE REPAIR SLIDE CLEAN UP & MAINTENANCE	CU YD
1212	SHOULDER WASHOUT REPAIR	CU YD
1213	RIP RAP AND CRIBBING REPAIR	CU YD
1214	SLIDE AND ROCK FALL DEBRIS DEBRIS CONTAINMENT INSTALL OR REPAIR.	NONE
1299	OTHER SLOPE MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

Group 3 Roadside and Vegetation Management

3A1 Litter Pickup

1671	ROAD KILL/ANIMAL DISPOSAL	EACH
1673	LITTER PICK-UP	CU YD
1674	LITTER BAG PICK-UP	CU YD
1675	ADOPT-A-HIGHWAY ADMINISTRATION	NONE
1676	TRANSIENT REMOVAL AND CLEANUP	NONE

3A2 Noxious Weed Control

1616	NOXIOUS WEED CONTROL – SPOT SPRAY NON-POWER EQUIPMENT	NONE
1617	NOXIOUS WEED CONTROL – SPRAY WITH POWER EQUIPMENT	ACRE
1618	NOXIOUS WEED CONTROL – MANUAL	NONE
1619	NOXIOUS WEED CONTROL – MECHANICAL	ACRE
1641	HYDRO SEEDING & MULCHING	ACRE
1651	FERTILIZING & LIMING	ACRE

3A3 Nuisance Vegetation Control

1611	NUISANCE VEG. CONTROL - SPRAY WITH POWER EQUIPMENT	ACRE
1612	NUISANCE VEG. CONTROL - MECHANICAL	ACRE
1613	NUISANCE VEG. CONTROL - MANUAL	ACRE
1615	RESIDUAL HERBICIDE APPLICATION - ZONE 1	ACRE
1652	ROADSIDE MOWING	ACRE
1680	FENCE REPAIR & INSTALLATION	LINEAR FT
1683	PATH AND TRAIL REPAIR AND MAINTENANCE	NONE
1699	OTHER ROADSIDE MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

3A4 Control of Vegetation Obstructions

1622	CONTROL OF VEG OBSTRUCTIONS - POWER SPRAYING	EACH
1625	CONTROL OF VEG OBSTRUCTIONS - MECHANICAL	EACH
1626	CONTROL OF VEG OBSTRUCTIONS - MANUAL	EACH
1628	DANGER TREE REMOVAL	EACH

Operation Number Connection to MAP Activities

		Unit

Group 3 Roadside and Vegetation Management

3A5 Landscape Maintenance

1511	NUISANCE VEG. CONTROL - SPRAY WITH POWER EQUIPMENT	ACRE
1512	NUISANCE VEG. CONTROL - MECHANICAL	ACRE
1513	NUISANCE VEG. CONTROL - MANUAL	ACRE
1516	NOXIOUS WEED CONTROL – SPOT SPRAY NON-POWER EQUIPMENT	NONE
1517	NOXIOUS WEED CONTROL – SPRAY WITH POWER EQUIPMENT	ACRE
1518	NOXIOUS WEED CONTROL – MANUAL	ACRE
1519	NOXIOUS WEED CONTROL – MECHANICAL	ACRE
1525	CUTTING/PRUNING/SELECTIVE THIN	NONE
1541	SEEDING, MULCHING & PLANTING PLANT MTRLS	NONE
1551	FERTILIZING & LIMING	ACRE
1552	MOWING ORNAMENTAL LAWNS	ACRE
1561	IRRIGATION SYSTEM OPERATION & MAINTENANCE	NONE
1599	OTHER LANDSCAPE MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

Group 4 Bridge and Urban Tunnel Maintenance and Operations

4A1 Bridge Deck Repair

1936	DECK MAINTENANCE	SQ FT

4A2 Structural Bridge Repair

1931	STRUCTURAL BRIDGE INSPECTION, NON-DECLARED EMERGENCY	NONE
1932	REMOVE DEBRIS UNDERNEATH BRIDGE	NONE
1941	BRIDGE APPURTENANCE MAINT	NONE
1942	STRUCTURAL MAINTENANCE	NONE
1943	SCOUR REPAIR	NONE
1952	SIGN BRIDGE REPAIR, STRUCTURAL	EACH
1953	EXPANSION JOINT MAINTENANCE	LINEAR FT
1999	OTHER BRIDGE MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

4A3 Bridge Cleaning

1922	BRIDGE, STRUCTURE CLEANING	NONE
1923	SURFACE/SIDEWALK CLEANING AND SWEEPING	NONE
1928	CLEAN AND REPAIR BRIDGE DRAIN	EACH
1933	PAINTING - INCLUDING SAND BLAST	NONE

4B1 Movable and Floating Bridge Operations

1915	PUMP WATER FROM PONTOON CELLS	NONE
1916	ANCHOR CABLE TENSIONING	NONE
1921	ROUTINE INSPECTION	NONE
1955	BRIDGE MECHANISM MAINTENANCE	NONE
1956	ELECTRICAL MAINTENANCE	NONE
1957	HYDRAULIC MAINTENANCE	NONE
1980	MOVABLE BRIDGE OPERATION	NONE

Operation Number Connection to MAP Activities

Unit

Group 4 Bridge and Urban Tunnel Maintenance and Operations

4B2 Keller Ferry Operations

2880	FERRY OPERATION	TRIP
2881	FERRY REPAIR & MAINTENANCE	NONE
2882	FERRY FACILITY REPAIR & MAINT	NONE
2899	OTHER FERRIES OPERATIONS AS APPROVED BY SUPERINTENDENT	NONE

4B3 Urban Tunnel Systems

3211	VENT FAN/MECHANICAL SYSTEM P M	EACH
3212	FIRE PROTECTION SYSTEMS - ELECTRONICS PM	EACH
3213	ELECTRICAL SYSTEM P.M.	EACH
3214	AIR PLENUM P.M.	NONE
3215	CARBON MONOXIDE MONITOR P.M.	EACH
3216	FIRE PROTECTION SYSTEMS - MECHANICAL PM	EACH
3231	VENT FAN/MECHANICAL SYSTEM REPAIR	EACH
3232	FIRE PROTECTION SYSTEMS - ELECTRONICS REPAIR	EACH
3233	ELECTRICAL SYSTEM REPAIR	EACH
3234	AIR PLENUM REPAIR	NONE
3235	CARBON MONOXIDE MONITOR REPAIR	EACH
3236	TUNNEL WASHING-WALLS	100 LINEAR FT
3237	TUNNEL WASHING-ILLUMINATION	NONE
3238	FIRE PROTECTION SYSTEMS - MECHANICAL REPAIR	EACH
3280	URBAN TUNNEL FACILITIES WORK	NONE
3291	COMPUTER OR ELECTRONICS SYSTEM WORK	NONE
3299	OTHER URBAN TUNNEL MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

Operation Number Connection to MAP Activities

		Unit

Group 5 Snow and Ice Control Operations

5B1 Snow and Ice Control Operations

2111	SNOW BLOWER	EQUIP MILE
2113	SNOW PLOWING TRUCK	EQUIP MILE
2115	SNOW PLOWING - MOTOR GRADER	EQUIP MILE
2117	SNOW DRIFT REMOVAL	NONE
2118	OPENING SEASONAL PASSES	NONE
2142	WINTER SAND CLEANUP	SHLDR MILE
2151	SANDING	CU YD
2152	ANTI-ICING & DE-ICING APPLICATION-LIQUID	GALLON
2153	ANTI-ICING & DE-ICING APPLICATION – SOLID	LBS
2161	MAINT GUIDE STAKES/POSTS/SIGNS	EACH
2162	WINTER DRAINAGE MAINTENANCE	NONE
2164	WINTER SAFETY PATROL	EQUIP MILE
2165	AVALANCHE CONTROL	NONE
2166	STOCKPILING & MIXING SAND & CHEMICALS, RELOCATING & RESHAPING STOCKPILES	NONE
2167	RADIO OPERATION	NONE
2168	DORMITORY & DINING ROOM OPERATIONS	NONE
2169	MIXING DEICING LIQUIDS	NONE
2181	WINTER FIELD SUPERVISION	NONE
2199	OTHER SNOW & ICE WORK MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

Group 6 Traffic Control Maintenance and Operations

6A1 Pavement Striping Maintenance

2311	STRIPING - PAINT	LINE MILE
2312	STRIPING– DURABLE	LINEAR FT

6A2 Raised/Depressed Pavement Marker Maintenance

2315	REMOVE LANE MARKERS	EACH
2316	INSTALL LANE MARKERS	EACH

6A3 Pavement Marking Maintenance

2318	SPECIAL MARKINGS - PAINT	LINEAR FT
2323	PAVEMENT MARKINGS - PAINT	EACH
2326	PAVEMENT MARKINGS – DURABLE	EACH
2399	OTHER PAVEMENT MARKING MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

6A4 Regulatory Sign Maintenance

2216	REGULATORY SIGN, REPAIR, REPLACE & MAINT	EACH

6A5 Guide Sign Maintenance

2217	ADVISORY SIGN, REPAIR, REPLACE & MAINT (SINGLE POST)	EACH
2218	ADVISORY SIGN, REPAIR, REPLACE & MAINT (MULTIPLE POST)	EACH
2219	SIGN WASHING	EACH
2224	SIGN REPAIR/OVERHEAD SIGN BRIDGE	EACH
2299	OTHER SIGN MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

Operation Number Connection to MAP Activities

		Unit

Group 6 Traffic Control Maintenance and Operations

6A6 Guidepost Maintenance

2241	GUIDEPOST & DELINEATOR MAINTENANCE	EACH
2242	GUIDEPOST & DELINEATOR REPLACEMENT	EACH

6A7 Guardrail Maintenance

2411	MAINT & REPAIR OF GUARDRAIL	LINEAR FT
2412	CONCRETE BARRIER MAINT AND REPAIR	LINEAR FT
2413	ATTENUATORS - MAINT, CLEANING AND REPAIR	EACH
2414	CLEANING UNDER GUARDRAIL	LINEAR FT
2415	GUARDRAIL END TREATMENT	EACH
2499	OTHER GUARDRAIL MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

6B1 Traffic Signal Systems

2611	SIGNAL CONTROL SYSTEM MAJOR PM	EACH
2612	SIGNAL CONTROL SYSTEM MINOR PM	EACH
2613	SIGNAL DISPLAY/ DETECT SYSTEM PM	EACH
2614	SIGNAL DISPLAY/ DETECT SYSTEM REPAIR	EACH
2632	SIGNAL CONTROL SYSTEM REPAIR	EACH
2698	LOCATES FOR SIGNALS	EACH
2699	OTHER SIGNAL CONTROL MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

6B2 Highway Lighting Systems

2711	ILLUMINATION SYSTEM P.M.	EACH
2715	ELECTRICAL SERVICE P.M.	EACH
2731	ILLUMINATION SYSTEM REPAIR	EACH
2737	ELECTRICAL SERVICES REPAIR	EACH
2798	LOCATES FOR LIGHTING	EACH
2799	OTHER ILLUMINATION MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

Operation Number Connection to MAP Activities

Unit

Group 6 Traffic Control Maintenance and Operations

6B3 Intelligent Traffic Systems

2512	RAMP METER SYSTEM P.M.	EACH
2513	CLOSED CIRCUIT TELEVISION P.M.	EACH
2514	VMS/CHANGEABLE SIGN P.M.	EACH
2515	HIGHWAY ADVISORY RADIO/HIGHWAY ADVISORY TRANSMITTER P.M.	EACH
2516	EXPRESS LANE GATES/SIGNS & BARRIER P.M.	EACH
2517	ROADWAY WEATHER INFORMATION STATION P.M.	EACH
2518	DATA STATION SYSTEMS P.M.	EACH
2519	HUB P.M.	EACH
2520	WEIGH STATIONS - WEIGH IN MOTION AND SIGN CONTROL SYSTEMS P.M.	EACH
2521	EMERGENCY PHONE PM	EACH
2522	RADIO REBROADCAST SYSTEM PM	EACH
2532	RAMP METER SYSTEM REPAIR	EACH
2533	CLOSED CIRCUIT TELEVISION REPAIR	EACH
2534	VARIABLE MESSAGE SIGN/CHANGEABLE MESSAGE SIGN REPAIR	EACH
2535	HIGHWAY ADVISORY RADIO/HIGHWAY ADVISORY TRANSMITTER REPAIR	EACH
2536	EXPRESS LANE GATES/SIGNS & BARRIER REPAIR	EACH
2537	ROADWAY WEATHER INFORMATION STATION REPAIR	EACH
2538	DATA STATION SYSTEM REPAIR	EACH
2539	HUB REPAIR	EACH
2540	WEIGH STATIONS - WEIGH IN MOTION AND SIGN CONTROL SYSTEMS REPAIR	EACH
2541	EMERGENCY PHONE REPAIR	EACH
2542	RADIO REBROADCAST SYSTEM REPAIR	EACH
2598	LOCATES FOR ITS	EACH
2599	OTHER ITS MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

6B4 Permits

1431	VEHICLE PERMITS	NONE
1432	FRANCHISE PERMITS	NONE
1433	APPROACH PERMITS	NONE
1445	ILLEGAL SIGNS, ENCROACHMENT	NONE

Operation Number Connection to MAP Activities

		Unit

Group 7 Rest Area Operations

7B1 Rest Area Operations

1711	WEED CONTROL MANUAL	NONE
1721	WINTER MAINTENANCE ACTIVITIES	NONE
1725	CUTTING/PRUNING/SELECTIVE THINNING	NONE
1741	SEEDING/PLANTING, MULCHING & FERTILIZING	NONE
1752	MOWING LAWNS	ACRE
1761	IRRIGATION SYSTEM OPERATION & MAINTENANCE	NONE
1773	LITTER PICK-UP	NONE
1774	GARBAGE COLLECTION AND DISPOSAL	CU YD
1781	GENERAL BUILDING MAINTENANCE	NONE
1782	JANITORIAL SERVICE	NONE
1783	ELECTRICAL MAINTENANCE	NONE
1784	DOMESTIC WATER SYSTEM MAINTENANCE	NONE
1787	SEWAGE SYSTEM MAINTENANCE	NONE
1788	RV DUMP MAINTENANCE	NONE
1799	OTHER REST AREA MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

Group 8 Training and Testing

8B1 Employee Technical and Safety Training

6017	NON-REQUIRED TRAINING	NONE
6018	REQUIRED TRAINING	NONE
6019	SAFETY AND OTHER MEETINGS	NONE
6020	EQUIPMENT TRAINING	NONE
6032	INSTRUCTOR TRAINING	NONE

8B2 Support and Testing

6014	MAINT OF STOCKPILE SITES	NONE
6015	YARD AND SHOP CLEAN UP	NONE
6016	FIELD SUPERVISON/EXCEPT SNOW&ICE	NONE
6023	SHOP STEWARD ACTIVITIES	NONE
6024	RADIO OPERATOR - EXCL. SNOW/ICE	NONE
6027	ADMINISTRATIVE SUPPORT	NONE
6028	TORT LIABILITIES	NONE
6033	DRUG AND ALCOHOL TESTING	NONE
6099	OTHER TRAINING & TESTING AS APPROVED BY SUPERINTENDENT	NONE

Operation Number Connection to MAP Activities

	Unit

Group 9 3rd Party Damage Repairs and Disaster Operations

9B1 3rd Party Damages

3111	PAVEMENT REPAIR	SQ FT
3112	ROADSIDE REPAIR	NONE
3113	FENCE REPAIR	LINEAR FT
3115	STRUCTURES	NONE
3120	HAZ WASTE/SPILL/DEBRIS CLEANUP	NONE
3122	GRAFFITI REMOVAL	SQ FT
3131	TRAFFIC SIGNS/DIRECTION MARKER	EACH
3150	CABLE GUARDRAIL	LINEAR FT
3151	BEAM GUARDRAIL	LINEAR FT
3152	ENERGY ABSORBING BARRIERS	EACH
3153	CONCRETE BARRIERS	LINEAR FT
3154	GUARDRAIL END TREATMENT	EACH
3161	TRAFFIC SIGNAL EQUIPMENT REPAIR	EACH
3162	EXPRESS LANE EQUIP. REPAIR	EACH
3163	VMS REPAIR	EACH
3164	HIGHWAY ADVISORY RADIO HAR REPAIR	EACH
3165	RWIS REPAIR	EACH
3166	DATA STATION REPAIR	EACH
3167	RAMP METER REPAIR	EACH
3168	CCTV REPAIR	EACH
3169	HUB REPAIR	EACH
3170	WEIGH IN MOTION REPAIR	EACH
3171	HIGHWAY LIGHTING SYSTEM REPAIR	EACH
3172	EMERGENCY PHONE REPAIR	EACH
3181	REST AREA REPAIR	NONE
3195	TRAFFIC CONTROL/DETOURS	NONE
3199	OTHER 3RD PARTY DAMAGE AS APPROVED BY SUPERINTENDENT	NONE

9B2 Disasters

4011	ROADWAY SURFACES	NONE
4013	DRAINAGE FACILITIES	NONE
4015	ROADSIDE & REST AREAS	NONE
4019	STRUCTURES	NONE
4021	BRIDGE INSPECTION	NONE
4022	TRAFFIC SERVICES	NONE
4095	TRAFFIC CONTROL/DETOURS	NONE
4099	OTHER DISASTER MAINTENANCE AS APPROVED BY SUPERINTENDENT	NONE

Chapter 4

Performance Measures

Measuring Performance

Workload
Pavement cracks & pot holes
Plugged culverts
Litter on roadside

Re$ource$
Labor
Equipment
Materials
Information

Level Of Delivery
Maintenance Activities

Quantity of Work Done
Feet of cracks sealed
Number of culverts cleaned

Results
Service Level Achieved
Condition of pavement
Condition of culverts
Condition of roadside

Performance Measures:

MAP

MAP Measures Outcomes

Outcomes - Measure the result (outcome)

Examples:
- Service level rating
- Sq. ft. of deficient pavement per lane
- Per cent of culverts plugged
- Amount of litter per system mile of highway

Outputs - Measure the quantity of work done.

Examples:
- System miles maintained
- Feet of crack sealed
- Number of culverts cleaned
- Cubic Yards of litter picked up

Maintenance Performance Measures

Group 1 - Roadway Maintenance & Operations

Component				Service Level				
Roadway Maintenance				**A**	**B**	**C**	**D**	**F**
Num.	**Activities**	**Condition Indicators**	**Outcome Measures**	Threshold	Threshold	Threshold	Threshold	Threshold
1A1	Pavement Patching & Repair	Pavement deficiencies	Square foot of deficiencies per lane mile	0 - 1000	1001 - 2000	2001 - 5000	5001 - 10000	>10,000
1A2	Crack Sealing	Unfilled longitudinal and transverse cracks.	Linear ft. of pavement with unfilled cracks/joints per lane mile	0 - 250	251 - 500	501 - 1000	1001 - 2500	>2,500
1A3	Shoulder Maintenance	Paved shoulder with deficiencies	Percent of paved shoulder area with deficiencies	0 - 2%	2.1% - 4%	4.1% - 8%	8.1% - 15%	>15%
1A4	Sweeping and Cleaning	Sand, rocks and debris on paved shoulder	Percent of paved shoulder area with debris	0 - 5%	5.1% - 10%	10.1% - 20%	20.1% - 40%	>40%

Component				Service Level				
Roadway Operations				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome Measures	Threshold	Threshold	Threshold	Threshold	Threshold
1B1	Safety Patrol	Hours of Safety Patrol	Hours of safety patrol per centerline mile to operate a safe highway	>20	19.9 - 10	9.9 - 5	4.9 - 2	<2

See Chapter 8 for MAP Field Data Collection Form

Maintenance Performance Measures

Group 2 - Drainage Maintenance and Slope Repair

Component				Service Level				
Drainage Maintenance				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome Measures	Threshold	Threshold	Threshold	Threshold	Threshold
2A1	Maintain Ditches	Ditches with sediment buildup, unable to carry design flow.	Percent of ditches greater than 50% filled with sediment/debris.	0 - 1%	1.1% - 5%	5.1% - 10%	10.1% - 15%	>15%
2A2	Maintain Culverts	Cross culvert pipes plugged with dirt and/or debris, unable to carry design flow.	Percent of pipes/culverts greater than 50% filled, or otherwise deficient.	0 - 2%	2.1% - 5%	5.1% - 10%	10.1% - 20%	>20%
2A3	Maintain Catch Basins & Inlets	Catch basins and inlets that are blocked or have sediment build-up.	Percent of inlets blocked 50% or more with debris, or CB with sediment build-up reaching or exceeding flow line of outlet pipe.	0 - 3%	3.1% - 7%	7.1% - 15%	15.1% - 30%	>30%
2A4	Maintain Dention/Retention Basins	Silt basins unable to hold design capacity .	Percent of silt basins greater than 25% filled with sediment.	0 - 1%	1.1% - 5%	5.1% - 10%	10.1% - 15%	>15%
2A5	Slope Repair	Unrepaired erosion or slides encroaching on, or undermining the shoulder or traveled lane.	Percent of centerline miles with slides or erosion encroaching on, or undermining the shoulder or traveled way.	0 - 2%	2.1% - 4%	4.1% - 7%	7.1% - 10%	>10%

See Chapter 8 for MAP Field Data Collection Form

Maintenance Performance Measures

Group 3 - Roadside and Vegetation Management

Component				Service Level				
Roadside Maintenance				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome Measures	Threshold	Threshold	Threshold	Threshold	Threshold
3A1	Litter Pickup	Presence of litter on the roadside.	Number of fist sized, or larger, objects present per centerline mile.	0 - 125	126 - 250	251 - 500	501 - 1000	>1000
3A2	Noxious Weed Control	Presence of noxious weeds on the roadside.	Percent of roadside area with Class A or Class B noxious weeds present.	0 - 1%	1.1% - 2.5%	2.6 % - 5%	5.1% - 15%	>15%
3A3	Nusiance Vegetation Control	Presence of nusiance vegetation on the roadside, in a normally maintained area.	Percent of normally maintained roadside area with nuisance vegetation present.	0 - 2.5%	2.6 % - 5%	5.1% - 10%	10.1% - 20%	>20%
3A4	Control Of Vegetation Obstructions	Presence of vegetation blocking site lines to intersections or signs.	Percent of centerline miles with instances of vegetation obstructions.	0 - 0.5%	0.6% - 1.5%	1.6% - 3.5%	3.6% - 6%	>6%
3A5	Landscape Maintenance	Appearance & health of landscaped roadside areas	Condition Score (See Condition Description Matrix 3A5)	3	4	5 to 6	7 to 8	9

See Chapter 8 for MAP Field Data Collection Form

Maintenance Performance Measures

Group 3 - Roadside and Landscape Maintenance

3A5 - Landscape Maintenance Condition Description Matrix

	Weed Control	Plant Health	Trimming, Pruining, & Planting
Condition 1	Planting beds with less than 5% visible weeds	Plants healthy and lush. Less than 5% of the plants exhibit visible stress or disease. Ground cover has 100% coverage. Lawns contain less than 5% visible weeds and dry spots.	All plants exhibit appropriate shape and character. Lawns mowed and trimmed regularly. 5% voids in plant beds. Plants have not overgrown their location.
Condition 2	Planting beds with less than 15% visible weeds.	Less than 15% of plants exhibiting some stress or disease. Ground cover has no less than 90% coverage. Less than 15% of lawn area contains visible weeds or dry spots.	No more than 15% of all plants exhibit sprouting or contain a few dead or dying branches. Lawns mowed, but not trimmed regularly. Less than 15% voids in plant beds. Plants have not overgrown their location.
Condition 3	Planting beds with greater than 15% visible weeds.	Greater than 15% of plants exhibiting some stress or disease. Ground cover has less than 90% coverage. Greater than 15% of lawn area contains visible weeds, dry spots, and is allowed to go dormant in the summer.	More than 15% of all plants may exhibit sprouting or contain dead or dying branches. Lawns mowed until dormant, but not trimmed. Greater than 15% voids in plant beds. Greater than 15% of plants have overgrown their location.

Condition Total = Weed Control Condition + Plant Health Condition + Trimming, Pruning, & Planting Condition

Service Level	Condition Total
A	3
B	4
C	5 to 6
D	7 to 8
F	9

Maintenance Performance Measures

Group 4 - Bridge & Urban Tunnel Maintenance & Operations

Component				Service Level				
Bridge Maintenance				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome Measures	Threshold	Threshold	Threshold	Threshold	Threshold
4A1	Bridge Deck Repair	Unrepaired deck spalling of 6" or greater on the bridge deck.	Percent of bridge deck with spalling.	0 - 0.0025%	0.0026% - 0.015%	0.0151% - 0.05%	0.051% - 0.15%	> 0.15%
4A2	Structural Bridge Repair	Priority 1 deficiencies identified on bridges.	Percent of Priority 1 repairs completed.	100% - 90%	89% - 80%	79% - 65%	64% - 50%	<50%
4A3	Bridge Cleaning	Debris on bridge deck and sidewalks, graffiti on structure.	Condition Score (See Condition Description Matrix -4A3)	0 to 3	4 to 5	6 to 7	8 to 9	>9

Component				Service Level				
Bridge Operations				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome Measures	Threshold	Threshold	Threshold	Threshold	Threshold
4B1	Movable & Floating Bridge Operations	Delayed opening/closing due to mechanical malfunction	Percent openings/closings delayed due to mechanical malfunction	0 - 2%	2.1% - 5%	5.1% - 10%	10.1% - 20%	> 20%
4B2	Keller Ferry	Service availability	Hours/days of operation	24 hrs/day 365 days/yr	18 hrs/day 365 days/yr	14 hrs/day 365 days/yr	12 hrs/day 313 days/yr	8 hrs/day 261 days/yr
4B3	Urban Tunnel Systems	Tunnel closure to flammable cargo for maintenance or malfunctioning mechical, electical or hydraulic systems.	Number of tunnel closures to flammable cargo per year	0 - 5	6 - 10	11 - 25	26 - 50	>50

See Chapter 8 for MAP Bridge Data Collection Form

Group 4 - Bridge Maintenance

4A3 - Bridge Cleaning Condition Description Matrix

	Decks & Sidewalks	Graffiti
Condition 1	Free of visible sand & debris	Free of graffiti.
Condition 2	Less than 10% of surface area covered with sand or debris.	Less than 10% of bridge surface covered with graffiti.
Condition 3	11% to 20% of surface area covered with sand or debris.	11% to 30% of bridge surface covered with graffiti.
Condition 4	21% to 40% of surface area covered with sand or debris.	31% to 50% of bridge surface covered with graffiti.
Condition 5	Greater than 40% of surface area covered with sand or debris.	More than 50% of bridge surface covered with graffiti.

Condition Total = Decks & Sidewalk Condition + Graffiti

Service Level	Condition Total
A	3 or less
B	4 to 5
C	6 to 7
D	8 to 9
F	More than 9

Maintenance Performance Measures

Group 5 - Snow and Ice Control

Component				Service Level				
Snow and Ice				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome Measures	Threshold	Threshold	Threshold	Threshold	Threshold
5B1	Snow & Ice Control Operations	Snow and/or ice on the roadway reducing traction and safety.	Improved road conditions from application of sand or deicer to the highway surface when show and/or ice is present. See Winter MAP Survey Form.	1 to 2	2.1 to 3	3.1 to 4	4.1 to 5	> 5

See Chapter 8 for MAP Snow & Ice Data Collection Form

Maintenance Performance Measures

Group 6 - Traffic Control Maintenance & Operations

Component				Service Level				
Traffic Control Maintenance				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome Measures	Threshold	Threshold	Threshold	Threshold	Threshold
6A1	Pavement Striping Maintenance	Worn or missing lane or edge stripes.	Percent of pavement striping worn or missing.	0 -1%	1.1% - 5%	5.1% - 10%	10.1% - 5%	>15%
6A2	Raised/Depressed Pavement Marker Maintenance	Missing or damaged pavement markers (buttons).	Percent of pavement markers damaged or missing.	0 - 5%	5.1% - 10%	10.1% - 20%	20.1% - 30%	>30%
6A3	Pavement Marking Maintenance	Stop bar, arrows, cross walks, etc., having more than 25% worn or missing	Percent of pavement markings with more than 25% missing.	0 - 2%	2.1% - 10%	10.1% - 20%	20.1% - 30%	>30%
6A4	Regulatory Sign Maintenance	Regulatory signs that are unreadable at night	Percent of regulatory signs that are unreadable at night.	0 - 1%	1.1% - 2%	2.1% - 5%	5.1% - 10%	>10%
6A5	Guide Sign Maintenance	Guide signs that are unreadable at night	Percent of guide signs that are unreadable at night.	0 - 2%	2.1% - 5%	5.1% - 10%	10.1% - 15%	>15%
6A6	Guidepost Maintenance	Missing or broken guideposts	Percent of guideposts that are broken or missing.	0 - 1%	1.1% - 5%	5.1% - 10%	10.1% - 20%	>20%
6A7	Guardrail Maintenance	Damaged or defective guardrail	Percent of guardrail that is damaged or missing.	0 - 1%	1.1% - 3%	3.1% - 5%	5.1% - 10%	>10%

Component				Service Level				
Traffic Control Operations				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome Measures	Threshold	Threshold	Threshold	Threshold	Threshold
6B1	Traffic Signal Systems	Traffic signals at an intersection flashing, with burnt out bulbs, or with a control system malfunctioning	Number of repairs per signal system required for this type of malfunction. Preventive maintenance is NOT counted.	1 per 2 years	1 per year	2 per year	3 per year	4 or more per year
6B2	Highway Lighting Systems	Burned out or cycling highway lights.	Percent of highway lights malfunctioning	0 - 5%	5.1% - 7.5%	7.6% - 10%	10.1% - 20%	>20%
6B3	Intelligent Transportation Systems	Malfunctioning ramp meters, reversible lane gates, signs, cameras, etc.	Number of repairs per ITS component required for this type of malfunction. Preventive maintenance is NOT counted.	1 per 2 years	1 per year	2 per year	3 per year	4 or more per year
6B4	Permits	Oversize-overweight permits issued correctly and in timely manner	Percent of permits requiring greater than specified time for processing	2%	5%	10%	20%	>20%

NOTE: Activity 6B4 will no longer be measured as part of the Maintenance Accoutability Program after calendar year 2004.

Maintenance Performance Measures

Group 7 - Rest Area Operations

Component				Service Level				
Rest Areas				**A**	**B**	**C**	**D**	**F**
Activities		Condition Indicators	Outcome Measures	Threshold	Threshold	Threshold	Threshold	Threshold
7B1	Rest Area Operations	Cleanliness of building. Non-functional building/utility systems (hand dryer, soap dispenser, dump station). Appearance of landscaped areas, sidewalks & pavement	Condition Score (See Condition Description Matrix - 7B1)	<5	38147	38273	14 - 17	>17

Maintenance Performance Measures

Group 7 Rest Area Operations

7B1 - Rest Area Condition Description Matrix

Category	Janitorial Services	Building & Utilities	Site	Operations
Condition 1 (Excellent)	Rest rooms are clean and sanitary. Room smells freshly sanitized. No graffiti or litter is visible. Walls, counter tops and floors are clean and dry. Soap & paper supplies are full. Trash containers are less than 1/4 full.	Building in good repair, partitions, doors, dispensers, and hand dryers in place without defects. Walls, roof, sky lights are functional and free of defects. RV dump station is functional and clean.	Landscape planting healthy, lush & free of weeds. Lawns mowed. Sidewalks & parking areas clean and free of defects. Picnic tables clean and free of defects. Site free of noticeable litter.	Rest area open 24 hours a day, 365 days a year
Condition 2 (Good)	Rest rooms are clean and sanitary,with no undesirable odor. No graffiti or litter is visible. Walls, counter tops and floors are clean, but may have minor water spots. Soap & paper supplies have adequate supply. Trash containers are less than 1/2 full.	Building is in good repair, with some minor surface defects. Functional partitions, doors, dispensers and hand dryers are in place. RV dump station is functional.	Landscape plantings are healthy, may have a minor amount of weeds. Lawns mowed. Sidewalks & parking areas clean but exhibit some minor defects. Picnic tables clean with minor defects. No noticeable litter.	Rest area may be closed during low use periods, primarily during the winter months. Closure does not exceed 3 months.
Condition 3 (Fair)	Rest rooms appear clean with no undesirable odor. Minor graffiti visible. Walls, counter tops and floors are clean, may have a significant amount of water spots. Floors contain a minor amount of litter. Soap & paper supplies have adequate supply. Trash 2/3 full.	Building with some moderate surface and minor functional defects. One partition door may be missing, one dispenser or hand dryer may be non-functional. A light may be out, mirrors missing. RV dump station is functional.	Landscape plantings exhibit some stress with a moderate amount of weeds and damaged or dying branches. Lawns are dry and infrequently mowed. Sidewalks & parking lots are clean with noticeable defects. Picnic tables clean with minor of defects. Minor amount of noticeable litter	Rest area closed more than 6 months a year during low use periods..
Condition 4 (Poor)	Rest rooms appear dirty and unsanitary, and may exhibit an undesirable odor. Significant graffiti may be visible. Counter tops are wet and water spotted, floors are wet and dirty. Soap & paper dispensers may be empty. Substantial litter is visible.	Building with some significant surface and moderate functional defects. More than one partition door may be missing, dispenser or hand dryer non-functional, light out, mirrors missing. RV dump station is temporarily out of order.	Landscape plantings contain noticeable weeds, damaged or dying branches. Lawns unmowed. Sidewalks & parking lots noticeably dirty with major defects. Picnic tables need cleaning and exhibit major defects. Significant noticeable litter	Rest area closed temporarily for repairs.
Condition 5 (Not Acceptable)	Portable toilets & paper provided only. Trash containers more than 2/3 full.	Building closed because of a utility or building deficiency. RV dump closed.	Landscape plantings with significant weeds, damaged or dying branches. Lawns dry and unmowed. Sidewalks & parking lots significantly dirty with major defects. Picnic tables need cleaning and exhibit major defects. Extensive litter.	Rest area closed permanently.

Condition Total = Janitorial Services Condition + Building & Utilities Condition + Site Condition + Operations

Level Of Service	Condition Total
A	<5
B	6 to 9
C	10 to 13
D	14 to 17
F	18 and over

Maintenance Performance Measures

Group 8 - Training and Testing

Component				Service Level				
Employee Technical & Safety Training				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome	Threshold	Threshold	Threshold	Threshold	Threshold
8B1	Employee Technical & Safety Training	None	None					

Component				Service Level				
Support Operations				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome	Threshold	Threshold	Threshold	Threshold	Threshold
8B2	Support and Testing	None	None					

Maintenance Performance Measures

Group 9 - 3rd-Party Damages and Disaster Operations

Component				Service Level				
3rd Party Damages				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome	Threshold	Threshold	Threshold	Threshold	Threshold
9B1	3rd Party Damages	Damaged Features	See performance measure listed for the appropriate activity.	NA	NA	NA	NA	NA

Component				Service Level				
Disaster Operations				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome	Threshold	Threshold	Threshold	Threshold	Threshold
9B2	Disaster Operations	Area-wide flooding, earth slides, winds, or major earthquake causing transportation system damage above routine levels.	none					

Notes:

1. 3rd Party damages estimated at 5 year average level. Repairs made as needed
2. Disaster funds not budgeted

Maintenance Performance Measures

Group 9 - 3rd-Party Damages and Disaster Operations

Component				Service Level				
3rd Party Damage Repairs				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome	Threshold	Threshold	Threshold	Threshold	Threshold
9B1	3rd Party Damages & Repairs	Damaged Features	See performance measure listed for the appropriate activity	NA	NA	NA	NA	NA

Component				Service Level				
Disaster Operations				**A**	**B**	**C**	**D**	**F**
Num.	Activities	Condition Indicators	Outcome	Threshold	Threshold	Threshold	Threshold	Threshold
9B2	Disaster Operations	Area-wide flooding, earth slides, winds, or major earthquake causing transportation system damage above routine levels	none					

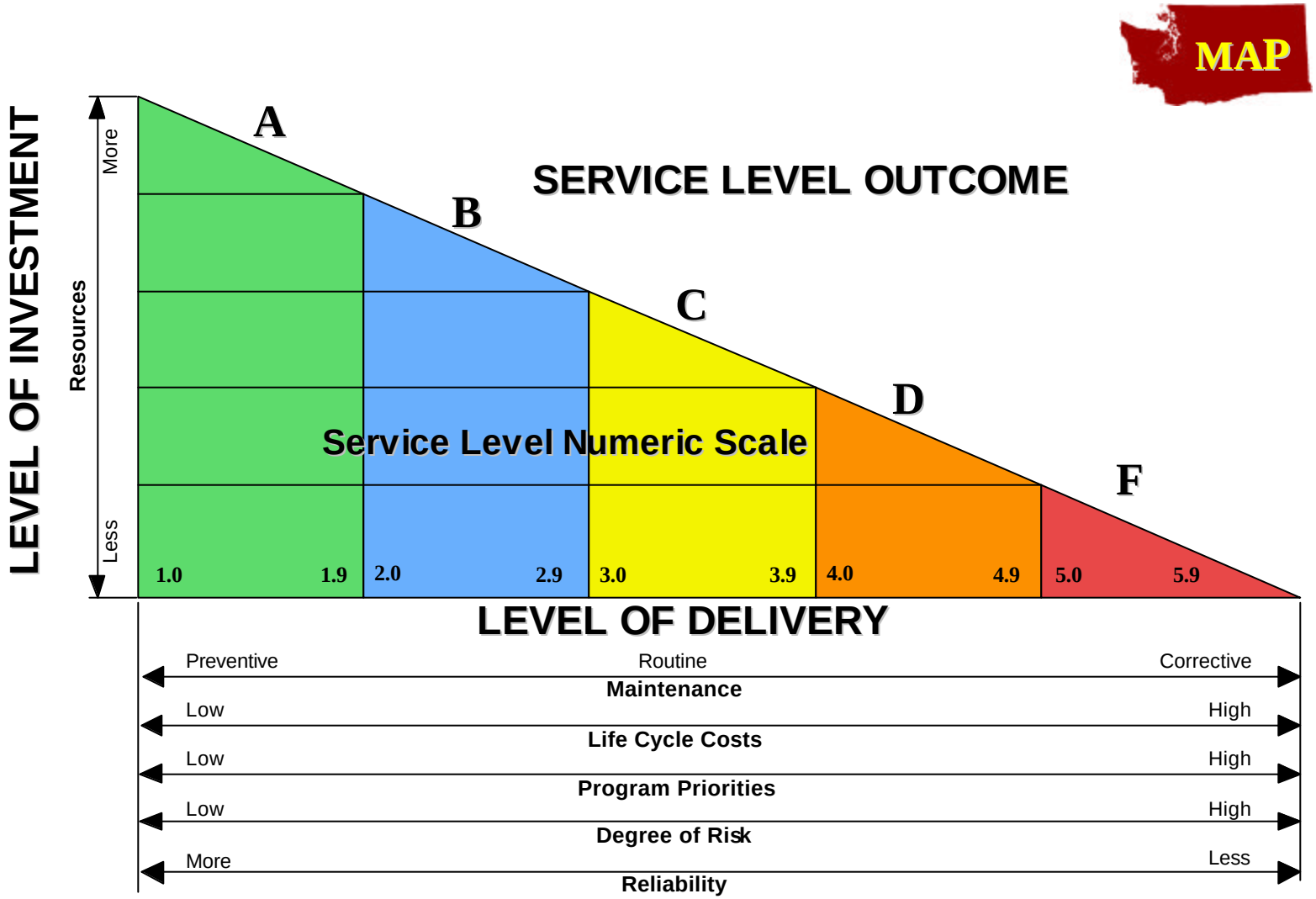
Notes:

1. 3rd Party damages estimated at 5 year average level. Repairs made as needed
2. Disaster funds not budgeted

Chapter 5

Service Level

Service Level Effectiveness Model



GROUP 1 – Roadway Maintenance and Operations

Service Level - A

Pavement with few unrepaired potholes, ruts, or unsealed cracks. No drop-off at the pavement edge. The shoulder is generally clean and free of debris.

Service Level - B

Pavement has a minor amount of unrepaired potholes, ruts, or unsealed cracks. A minor amount of drop-off and minor erosion is at the pavement edge. The paved shoulder contains a small amount of debris build-up at the edge.

Service Level - C

Pavement has a moderate amount of unrepaired potholes, ruts, or unsealed cracks. A moderate amount of drop-off has developed from at the pavement edge with some erosion. The paved shoulder contains a noticeable debris build-up that may be unsightly.

Service Level - D

Pavement has a significant amount of unrepaired potholes, ruts or unsealed cracks. A significant drop-off has developed at the pavement edge with noticeable erosion. The paved shoulder contains significant debris that would restrict bicycle or pedestrian use, and be unsightly.

Service Level - F

Pavement has an extensive amount of unrepaired potholes, ruts, or unsealed cracks. Extensive erosion or drop-off has developed at the pavement edge. The paved shoulder contains debris build-up that would prevent bicycle and pedestrian use, be a hazard to vehicles, and be unsightly.

GROUP 2 – Drainage Maintenance and Slope Repair

Service Level - A

Ditches and culverts flow freely. Storm drains are free of blockages, and slopes are stable. No standing on pavement.

Service Level - B

Ditches and culverts have minor silt and debris build-up. Storm drains have minor blockages. Minor puddling may occur during normal storm events.

Service Level - C

Ditches and culverts have moderate silt and debris build-up. Storm drains have moderate blockages and slopes have moderate erosion or slides. Some standing water on shoulder and in ditches during major storm events.

Service Level - D

Ditches and culverts have significant silt and debris build-up. Storm drains have significant blockages. Erosion or slides may encroach or threaten the roadway. Standing water in traveled lane during normal storm event.

Service Level - F

Ditches and culverts have extensive silt and debris build-up. Drains are blocked. Erosion and slides threaten roadway. Water over the roadway during normal storm events.

GROUP 3 – Roadside and Landscape Maintenance

Service Level - A

Roadside with minimal visible litter, no noxious weeds, nuisance vegetation, or vegetation obstructions. Ditch lines, guardrail, signs and sight lines are completely visible.

Service Level - B

Roadside has a minor amount of visible litter, noxious weeds, nuisance vegetation, or vegetation obstructions. Ditch lines, guardrail, signs, and sight lines are slightly obscured by encroaching vegetation.

Service Level - C

Roadside has a moderate amount of visible litter, noxious weeds, nuisance vegetation, or vegetation obstructions. Vegetation is starting to encroach on the pavement edge, moderately obscuring ditch lines, guardrail, signs, and sight lines.

Service Level - D

Roadside has a significant amount of visible litter, noxious weeds, nuisance vegetation, or vegetation obstructions. Vegetation is encroaching on the pavement edge, significantly obscuring ditch lines, guardrail, signs, and sight lines.

Service Level - F

Roadside has a extensive amount of visible litter, noxious weeds, nuisance vegetation, or vegetation obstructions. Vegetation has encroached on the pavement, extensively obscuring ditch lines, guardrail, signs, and sight lines.

GROUP 4 – Bridge and Urban Tunnel Maintenance & Operations

Typical Priority – 1 Bridge Repairs

Concrete chipping off deck and missing expansion joint.

Drift debris build-up at bridge pier. Can cause undermining of footing.

Concrete chipping and flaking off girders and piers.

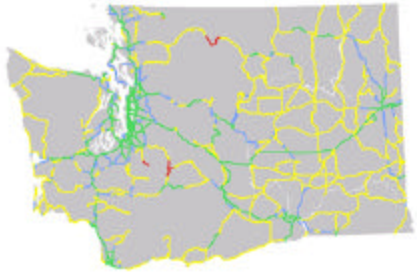
Rotted timbers of support structure.

Damaged bridge railing and barrier.

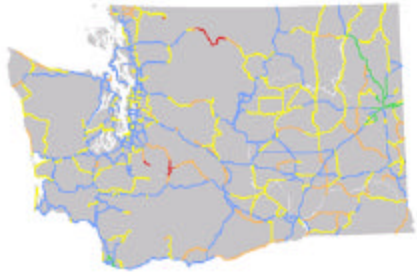
GROUP 5 – Snow and Ice Control Operations

Service Level - A

Service Level - B

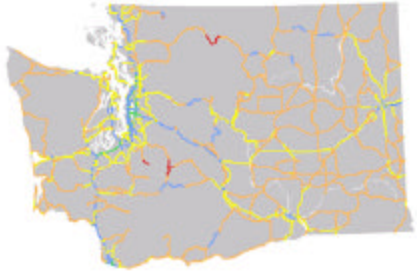


Service Level – 1998/99

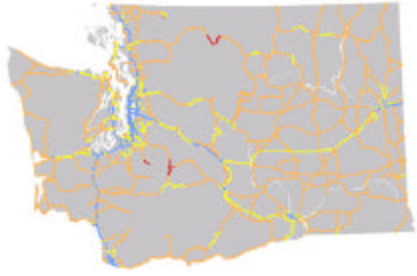


Service Level - C

Service Level - D



Service Level - F



Legend	
	Condition - 1
	Condition - 2
	Condition - 3
	Condition - 4
	Condition - 5

Note: See page 5--7 for condition descriptions.

GROUP 5 – Snow and Ice Control Operations

Condition - 1

Bare pavement condition maintained. Traveler rarely experiences delays.

Condition - 2

Snow build-up encountered occasionally. Traveler may experience some isolated delay with roads having patches of black ice, slush, or packed snow.

Condition - 3

Snow build-up encountered regularly. Traveler likely to experience some delay and slow travel with roads having black ice or packed snow with only the wheel track bare.

Condition - 4

Compact snow build-up encountered regularly. Traveler will experience delays and slow travel.

Condition - 5

Closed temporarily during the winter season.

GROUP 6 – Traffic Control Maintenance & Operations

Service Level - A

All stripes, signs and delineators are highly visible at night. All traffic signal, lighting, and other traffic operations systems are fully functional. Guardrail is sound and functional.

Service Level - B

Minor amount of stripes, signs and delineators have lost some night reflectivity , are worn or missing. Some traffic signal, lighting and other traffic operation systems experience minimal outages or down time. Guardrail has sustained minor visible damage, but is functionally sound.

Service Level - C

Moderate amount of stripes, signs and delineators have lost some night reflectivity, are worn or missing. Some traffic signal, lighting and other traffic operations systems experience moderate outages or down time. Guardrail is functionally sound, but sustained moderate visible damage and some structural deterioration.

Service Level - D

Significant amount of stripes, signs and delineators have lost night reflectivity, are worn or missing. Some traffic signal, lighting and other traffic operations system must be turned off or shut down. Guardrail has sustained significant visible damage and moderate structural deterioration.

Service Level - F

Extensive amount of stripes, signs and delineators have lost night reflectivity, are worn or missing. Significant traffic signal, lighting, and other traffic operations systems must be turned off or shut down. Guardrail has sustained extensive visible and structure damage.

GROUP 7 – Rest Area Operations

Service Level - A

Rest rooms cleaned regularly to meet the highest standard for cleanliness. Water and sewer systems comply with current codes. All building facilities are functional, painted and free of graffiti. Site free of litter. Grounds are neat and manicured.

Service Level - B

Rest rooms cleaned regularly as much as 2-3 times a day to meet most standards for cleanliness. Water and sewer systems comply with current codes. Buildings contain minor functional damage and some graffiti. Site contains a minor amount of litter. Grounds are clean but exhibits minor wear and damage.

Service Level - C

Rest rooms are cleaned regularly 1-2 times a day to meet moderate standards for cleanliness except in rest areas that receive the highest use. Water and sewer systems comply with current codes, but experience some breakdowns do to aging and wear. Buildings contain moderate functional damage and graffiti. Site contains a moderate amount of litter. Grounds exhibit moderate wear and damage.

Service Level - D

Rest rooms are cleaned only once a day to meet minimal standards for cleanliness except in rest areas that receive the highest use. Water and sewer systems comply with current codes, but experience frequent breakdowns forcing short term rest area closures. Buildings contain significant functional damage and graffiti. Site contains a significant amount of litter. Grounds exhibit significant wear and damage.

Service Level - F

Due to building , water or sewer system deficiencies, some rest areas are closed for extended periods. Portable toilets may be the only service provided. Grounds contain significant defects and extensive litter.

Definitions

Maintenance Service Level Rating Scale

The Maintenance Accountability Process (MAP) utilizes a simple scale that rates the outcomes of key maintenance activities based on the following criteria:

Service Level A (Best)

This is a very high service level in which the roadway and associated features are in excellent condition. All systems are operational and users experience no delays.

At this maintenance service level, very few deficiencies are present and the overall appearance is pleasing. Preventive maintenance is practice in all maintenance activities resulting in overall low life-cycle costs and pleasing appearance. Routine activities take place on a regular basis, requiring minimal corrective maintenance activities.

Service Level B

This is a high maintenance service level in which the roadway and associated features are in good condition. All systems are operational. Users may experience occasional delays.

At this maintenance service level, very few deficiencies are present in safety and investment protection activities, but moderate deficiencies exist in all other areas. Preventative maintenance is practiced for safety-related work, is deferred in other areas, resulting in additional routine and corrective maintenance measures. Corrective maintenance of all elements is handled in a timely manner . Life-cycle costs for maintenance activities is generally low.

Service Level C

This is a medium maintenance service level in which the roadway and associated features are in fair condition. Systems may occasionally be inoperable and not available to users. Short term delays may be experienced when repairs are being made, but would not be excessive.

At this maintenance service level, very few deficiencies are present in safety related activities, but moderate deficiencies exist for investment protection activities and significant aesthetic related deficiencies.. Preventative maintenance is deferred for most activities except safety-critical work. More emphasis is placed on routine maintenance activities, and corrective maintenance occurs as necessary. A backlog of deficiencies begin to build up that will have to be dealt with eventually, at a higher cost. Some roadway structural problems begin to appear due to the long-term deterioration of the system. There is a noticeable decrease in appearance.

Service Level D

This is a low maintenance service level in which the roadway and associated features are kept in generally poor condition. Systems failures occur regularly because it is impossible react in a timely manner to all problems. Occasionally delays may be significant.

At this maintenance service level, moderate deficiencies are present in safety related activities, and significant deficiencies for all other activities. Little preventative maintenance is accomplished. Maintenance has become very reactionary and places emphasis on correcting problems as they occur. A significant backlog of deficiencies will begin to build up that will have to be dealt with eventually, at a much higher cost. . Safety problems begin to appear that increase risk and liability, and significant roadway structural deficiencies exist that accelerate the long-term deterioration of the system. The overall appearance is very poor.

Service Level F (Worst)

This is a very low service level in which the roadway and associated features are kept in poor and failing condition. A backlog of systems failures would occur because it is impossible react in a timely manner to all problems. Significant delays occur on a regular basis.

At this maintenance service level, significant deficiencies are present in all maintenance activities. The overall appearance is not aesthetically pleasing. Preventive maintenance is not practiced for any maintenance activities Maintenance is totally reactive, and places emphasis on correcting problems after they occur. Significant backlogs of maintenance deficiencies exist. Excessive safety problems occur, road conditions are such that maintenance treatments are not be enough to correct the deficiencies that exist, necessitating additional high-cost remedial construction preservation projects in the future. Overall maintenance operations are at their highest life-cycle costs.

Maintenance Accountability Process

Program M Service Level

Fall 2000 and Spring 2000 Service Levels

Num.	Activity	1.0 +	A	1.9 -	2.0 +	B	2.9 -	3.0 +	C	3.9 -	4.0 +	D	4.9 -	5.0 +	F	5.9 -
Group 1 - Roadway Maintenance & Operations																
1A1	Pavement Patching & Repair				▼	●										
1A2	Crack Sealing								●▼							
1A3	Shoulder Maintenance							●▼								
1A4	Sweeping and Cleaning					▼	●									
1B1	Safety Patrol **						▼									
Group 2 - Drainage Maintenance & Slope Repair																
2A1	Maintain Ditches								●▼							
2A2	Maintain Culverts										▼●					
2A3	Maintain Catch Basins & Inlets										●	▼				
2A4	Maintain Detention/Retention Basins *								●							
2A5	Slope Repair												▼		●	
Group 3 - Roadside & Landscape Maintenance																
3A1	Litter Pickup											●		▼		
3A2	Noxious Weed Control						▼●									
3A3	Nuisance Vegetation Control								●▼							
3A4	Control Of Vegetation Obstructions															▼●
3A5	Landscape Maintenance **									▼						
Group 4 - Bridge & Urban Tunnel Maintenance & Operations																
4A1	Bridge Deck Repair **									▼						
4A2	Structural Bridge Repair **												▼			
4A3	Bridge Cleaning **								▼							
4B1	Movable & Floating Bridges Op.**					▼										
4B2	Keller Ferry Operations **					▼										
4B3	Urban Tunnel Systems Operations **			▼												
Group 5 - Snow & Ice Control Operations																
5B1	Snow & Ice Control Operations *							●								
Group 6 - Traffic Control Maintenance & Operations																
6A1	Pavement Striping Maintenance			▼										●		
6A2	Raised/Depressed Pavt. Marker Maint.												●	▼		
6A3	Pavement Marking Maintenance							▼								●
6A4	Regulatory/Warning Sign Maint											●▼				
6A5	Guide Sign Maintenance							▼	●							
6A6	Guidepost Maintenance											▼●				
6A7	Guardrail Maintenance				●▼											
6B1	Traffic Signal Systems **											▼				
6B2	Highway Lighting Systems					●	▼									
6B3	Intelligent Traffic Systems **									▼						
6B4	Permits / Franchises **					▼										
Group 7 - Rest Area Operations																
7B1	Rest Area Operations *					●										

* Activity data collected once per year in spring.

** Activity data collected once per year in fall.

Legend

● Spring 2000 Service Level

▼ Fall 2000 Service Level

Maintenance Accountability Process

Program M Service Level

Current Service Levels and 2001-03 CLB Commitments

Num.	Activity	1.0		1.9	2.0		2.9	3.0		3.9	4.0		4.9	5.0		5.9
		+	A	-	+	B	-	+	C	-	+	D	-	+	F	-
Group 1 - Roadway Maintenance & Operations																
1A1	Pavement Patching & Repair					✓	●									
1A2	Crack Sealing								✓			●				
1A3	Shoulder Maintenance							✓		●						
1A4	Sweeping and Cleaning					✓	●									
1B1	Safety Patrol **						✓		●							
Group 2 - Drainage Maintenance & Slope Repair																
2A1	Maintain Ditches								✓●							
2A2	Maintain Culverts										✓		●			
2A3	Maintain Catch Basins & Inlets											●✓				
2A4	Maintain Detention/Retention Basins *								✓●							
2A5	Slope Repair												●	✓		
Group 3 - Roadside & Landscape Maintenance																
3A1	Litter Pickup											●	✓			
3A2	Noxious Weed Control						✓	●								
3A3	Nuisance Vegetation Control								●✓							
3A4	Control Of Vegetation Obstructions													●		✓
3A5	Landscape Maintenance **									●✓						
Group 4 - Bridge & Urban Tunnel Maintenance & Operations																
4A1	Bridge Deck Repair **									✓	●					
4A2	Structural Bridge Repair **												✓	●		
4A3	Bridge Cleaning **								✓●							
4B1	Movable & Floating Bridges Op.**					✓		●								
4B2	Keller Ferry Operations **					✓●										
4B3	Urban Tunnel Systems Operations **			✓				●								
Group 5 - Snow & Ice Control Operations																
5B1	Snow & Ice Control Operations *							✓●								
Group 6 - Traffic Control Maintenance & Operations																
6A1	Pavement Striping Maintenance							●	✓							
6A2	Raised/Depressed Pavt. Marker Maint.											●		✓		
6A3	Pavement Marking Maintenance											✓		●		
6A4	Regulatory/Warning Sign Maint											✓	●			
6A5	Guide Sign Maintenance								●✓							
6A6	Guidepost Maintenance										●	✓				
6A7	Guardrail Maintenance				✓●											
6B1	Traffic Signal Systems **								●			✓				
6B2	Highway Lighting Systems					✓●										
6B3	Intelligent Traffic Systems **							●		✓						
6B4	Permits / Franchises **					✓●										
Group 7 - Rest Area Operations																
7B1	Rest Area Operations *					✓●										

Legend

● Current Law Budget Service Level Commitment

✓ Service Level Currently Delivered By WSDOT

Maintenance
Accountability
Process

REGION

Service Level Chart Placeholder

Replace this sheet with the current region service level ratings

Washington State Department of Transportation
Field Operations Support Service Center
Maintenance Office

Maintenance
Accountability
Process

Area

Service Level Chart Placeholder

Replace this sheet with the current region service level ratings

Washington State Department of Transportation
Field Operations Support Service Center
Maintenance Office

Chapter 6

Planning

MAP Priorities

Num.	MAP Activity	Provide Safety	Operate Systems Reliably	Protect Our Investments	Support The Economy	Address Legal Mandates	Meet Environmental Responsibilities	Contribute To Comfort & Aesthetics	Priority Ranking	Service Level Priority Value
		Higher <<< Program Goal Rating >>>Lower								
9B2	***Disaster Operations***	●	●	●	●	✻	✻		1	39
1A1	Pavement Patching & Repair	●	✻	●	●	✻	❍	❍	2	38
5B1	***Snow & Ice Control Operation***	●	●	❍	●	✻		✻	3	37
6B1	***Traffic Signal System Operation***	●	●	❍	❍	●		❍	4	36
4B1	***Movable & Floating Bridge Operation***	✻	●		●	●			5	35
4B3	***Urban Tunnel Systems Operation***	✻	●	✻	✻	✻	●	❍	6	34
4B2	***Keller Ferry Operation***	✻	●	❍	●	❍			7	33
6A7	Guardrail Maintenance	●	✻	✻	❍	❍	❍	❍	8	32
3A2	Noxious Weed Control			✻	●	●	●	✻	9	31
4A2	Structural Bridge Repair	✻	✻	●	❍	✻	✻	❍	10	30
6B3	***SC & DI System Operation***	●	✻	❍	❍	❍	❍	❍	11	29
3A4	Control of Vegetation Obstructions	✻	✻	✻	✻	✻	✻	✻	12	28
6B4	***Permits/Franchises***	❍	✻	✻	✻	●	❍	❍	13	27
2A2	Maintain Culverts	❍	✻	●	❍	❍	✻	❍	14	26
6A4	Regulatory Sign Maintenance	✻	✻	❍	❍	●		✻	15	25
2A5	Slope Repairs	✻	✻	✻	❍	✻	✻	❍	16	24
1A2	Crack Sealing	❍	✻	●	❍		❍		17	23
4A1	Bridge Deck Repair	❍	❍	●	✻	❍		❍	18	22
1B1	***Safety Patrol***	✻	✻	✻		✻	❍	❍	19	21
7B1	***Rest Area Operation***	❍	✻	✻	✻	❍	✻	✻	20	20
6B2	***Highway Lighting Systems Operation***	✻	❍	❍	❍	❍		●	21	19
6A1	Pavement Striping Maintenance	✻	❍			✻		●	22	18
2A3	Maintain Catch Basins & Inlets	❍	❍	✻	❍	✻	✻	❍	23	17
6A2	Raised/Depressed Pavement Markers	✻	❍			✻		●	24	16
1A4	Sweeping and Cleaning	❍	❍	❍	❍	❍	●	✻	25	15
3A3	Nusiance Vegetation Control	❍		✻	✻	❍	✻	✻	26	14
2A1	Maintain Ditches	❍	❍	✻	❍	❍	✻	✻	27	13
1A3	Shoulder Maintenance	❍	❍	✻	❍	❍	✻	✻	28	12
2A4	Maintain Detention/Retention Basins		❍	❍	❍	✻	●	❍	29	11
3A1	Litter Pickup				❍	❍	●	●	30	10
6A5	Advisory Sign Maintenance	❍	❍	❍	✻	❍		✻	31	9
3A5	Landscape Maintenance			❍	✻	❍	❍	●	32	8
6A6	Guidepost Maintenance	❍	❍	❍	❍	❍		✻	33	7
4A3	Bridge Cleaning			✻	❍		✻	✻	34	6
6A3	Pavement Marking Maintenance	❍	❍			❍		✻	35	5
1A5	Misc. Roadway Maintenance			❍	❍	❍	❍	❍	36	4
2A6	Misc. Drainage Maintenance			❍	❍	❍	❍	❍	37	3
4A4	Misc. Bridge Maintenance			❍	❍	❍	❍	❍	38	2
3A6	Misc. Roadside Maintenance			❍	❍	❍	❍	❍	39	1
	Non-prioritized Support Operations									
8B1	***Customer Response & Field Supervision***									
8B2	***Employee Technical & safety Training***									
8B3	***Support Operations***									
9B1	***3rd Party Damage Repair***									

LEGEND:

Contribution To Program Goals

- ● - Critical Impact
- ✻ - Significant Impact
- ❍ - Contributing Impact
- - No Impact

Operational Activities In Bold-Italics

Highway Categories

The priority of maintenance given to a state highway facility is influenced by the functional class and amount of use (traffic) that it receives. In general highways are prioritized according to the following categories. Category 6 and 7 highways are prioritized according to were they fall within the criteria of Categories 1 through 5.

Category 1 Highway

Interstate with an ADT > 80,000

Category 2 Highway

Interstate or Principal Arterial with and ADT > 20,000

Category 3 Highway

Interstate or Principal Arterial with and ADT < 20,000
Minor Arterial with and ADT > 10,000

Category 4 Highway

Principal Arterial with ADT < 10,000
Minor Arterial with ADT < 10,000
Collector with ADT > 5,000

Category 5 Highway

Principal Arterial with ADT < 5,000
Minor Arterial with ADT < 5,000
Collector with ADT < 5,000

Category 6 Highway

Mountain pass highway

Category 7 Highway

Seasonal highway, normally closed during the winter.

Special Criteria

The priority of a highway may be raised or lowered a category, based on the following special criteria:

1. Importance to commerce, truck routes, etc.
2. Important commuter routes
3. School bus routes
4. Proximity to population centers
5. Curvature & grade of highway alignment

HIGHWAY CATEGORY INVENTORY

Category Mileage & Traffic Index

Northwest Region	Category 1	2	3	4	5	6	7	Total	Index
Area 1 Mileage	0.00	45.99	18.56	49.42	87.80	8.01	3.28	213.06	**2.00**
Area 2 Mileage	0.00	34.49	56.27	105.14	117.47	0.00	0.00	313.37	**2.02**
Area 3 Mileage	21.13	61.03	75.71	36.20	23.06	0.00	0.00	217.13	**3.10**
Area 4 Mileage	22.37	71.84	65.10	17.85	38.19	0.00	19.87	235.22	**2.84**
Area 5 Mileage	62.28	82.87	32.84	25.54	0.00	0.00	0.00	203.53	**3.89**
Reg. Total	105.78	296.22	248.48	234.15	266.52	8.01	23.15	1,182.31	**2.70**

North Central Region	Category 1	2	3	4	5	6	7	Total	Index
Area 1 Mileage	0.00	4.04	22.48	65.75	129.62	44.01	0.00	265.90	**1.30**
Area 2 Mileage	0.00	0.00	68.58	57.65	244.58	0.00	0.00	370.81	**1.53**
Area 3 Mileage	0.00	0.00	1.38	27.44	407.71	37.08	23.97	497.58	**0.94**
Reg. Total	0.00	4.04	92.44	150.84	781.91	81.09	23.97	1,134.29	**1.21**

Olympic Region	Category 1	2	3	4	5	6	7	Total	Index
Area 1 Mileage	14.05	79.82	58.14	63.48	97.11	0.00	8.00	320.60	**2.46**
Area 2 Mileage	0.00	58.49	67.36	52.39	82.46	0.00	0.00	260.70	**2.39**
Area 3 Mileage	0.00	8.04	36.32	39.16	193.53	0.00	0.00	277.05	**1.49**
Area 4 Mileage	0.00	4.52	48.53	53.58	135.01	0.00	0.00	241.64	**1.68**
Reg. Total	14.05	150.87	210.35	208.61	508.11	0.00	8.00	1,099.99	**2.03**

Southwest Region	Category 1	2	3	4	5	6	7	Total	Index
Area 1 Mileage	4.35	91.24	25.00	58.92	106.24	0.00	0.00	285.75	**2.40**
Area 2 Mileage	0.00	32.85	0.00	86.22	107.80	30.36	0.00	257.23	**1.60**
Area 3 Mileage	0.00	0.00	0.70	54.88	158.08	0.00	0.00	213.66	**1.26**
Area 4 Mileage	0.00	0.00	0.00	9.01	199.43	17.47	0.00	225.91	**0.96**
Reg. Total	4.35	124.09	25.70	209.03	571.55	47.83	0.00	982.55	**1.61**

South Central Region	Category 1	2	3	4	5	6	7	Total	Index
Area 1 Mileage	0.00	24.85	53.04	11.60	55.62	41.76	0.00	186.87	**1.81**
Area 2 Mileage	0.00	23.47	45.63	31.89	169.31	0.47	5.32	276.09	**1.68**
Area 3 Mileage	0.00	26.84	89.12	51.16	178.74	0.00	0.00	345.86	**1.90**
Area 4 Mileage	0.00	0.00	5.86	41.13	217.20	0.00	0.00	264.19	**1.20**
Reg. Total	0.00	75.16	193.65	135.78	620.87	42.23	5.32	1,073.01	**1.65**

Eastern Region	Category 1	2	3	4	5	6	7	Total	Index
Area 1 Mileage	0.75	40.60	82.45	88.36	72.65	0.00	0.00	284.81	**2.33**
Area 2 Mileage	0.00	0.00	9.72	40.85	371.83	0.00	0.00	422.40	**1.14**
Area 3 Mileage	0.00	0.00	63.40	38.57	302.69	0.00	0.00	404.66	**1.41**
Area 4 Mileage	0.00	0.00	2.08	57.23	363.01	21.74	0.00	444.06	**1.09**
Reg. Total	0.75	40.60	157.65	225.01	1,110.18	21.74	0.00	1,555.93	**1.41**

Statewide	Category 1	2	3	4	5	6	7	Total	Index
State Total	124.93	690.98	928.27	1,163.42	3,859.14	200.90	60.44	7,028.08	**1.76**

Source: Highway category data and index calculations based on 1998 Annual Traffic Report

Note:

1. Traffic Index is a value weighted by the amount of centerline miles per in each Category 1-5. Category 6 & 7 are not utilized in calculating Traffic Index.
2. Areas with highways that have higher traffic volumes and higher functional classes will have a higher traffic index.
3. Traffic Index can be used to normalize costs comparisons between areas and regions.

Service Level Calculation Model

Service Level Rating Scales

Service Level	A			B			C			D			F		
Letter Rating	A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F+	F	F-
Numeric Rating	1.0 - 1.25	1.26 -1.75	1.76 -1.99	2.0 - 2.25	2.26 -2.75	2.76 -2.99	3.0 - 3.25	3.26 -3.75	3.76 -3.99	4.0 - 4.25	4.26 -4.75	4.76 -4.99	5.0 - 5.25	5.26 -5.75	5.76 -5.99

Service Level Calculator

Group Total

MAP Activity	SL rating Spring	SL rating Fall	SL Ave.	Priority Value	Weighted Priortiy Value
1A1	2	2.4	2.2	38	83.600
1A2	3.5	3.7	3.6	23	82.800
1A3	3.1	3.2	3.15	12	37.800
1A4	2.7	3.1	2.9	15	43.500
1B1	3.5	3.5	3.5	21	73.500
Total for Group				109	321.20
Group Service Level Rating					**2.947 = B-**

Notes:

1 Spring and fall service level ratings are determined by annual field condition surveys
2 Service level average is the average of the spring and fall ratings
3 Priority value is determined from MAP Priorities matrix
4 Weighted value is the product of SL Ave. times Priority Value
5 Group Service Level Rating is the Total Weight Priority Value divided by the Total Priority Value

Service Level Calculator

M2 Total

Group	SL rating Spring	SL rating Fall	SL Ave.	Priority Value	Weighted Priortiy Value
1	2.55	3.35	2.95	109	321.550
2	4.12	3.68	3.9	91	354.900
3	3.12	3.42	3.27	91	297.570
4	3.28	3.8	3.54	160	566.400
5	3.2	3.2	3.2	37	118.400
6	2.85	2.9	2.875	223	641.125
7	2.2	2.65	2.425	20	48.500
Total for M2				731	2348.45
M2 Service Level Rating					**3.213 = C+**

Notes:

1 Spring and fall service level ratings are calculated from annual field condition surveys
2 Service level average is the average of the spring and fall ratings
3 Priority value is total value for each group determined from MAP Priorities matrix
4 Weighted value is the product of SL Ave. times Priority Value
5 M2 Service Level Rating is the Total Weight Priority Value divided by the Total Priority Value

Inventory Of Existing Facilities

Washington State Department of Transportation

Group 1-Roadway Maintenance & Operations

			Region						Eastern	Western	Statewide
#	Item	Unit	NW	NC	OLY	SW	SC	Eastern	Washington	Washington	Total
	Centerline miles	miles	1,195.99	1,133.80	1,103.38	986.49	1,075.17	1,568.17	3,777.14	3,285.86	7,063.00
	Lane miles	miles	3,759.80	2,471.69	2,826.85	2,372.09	2,936.92	3,613.68	9,022.29	8,958.74	17,981.03

Group 2-Drainage Maintenance & Slope Repair

			Region						Eastern	Western	Statewide
#	Item	Unit	NW	NC	OLY	SW	SC	Eastern	Washington	Washington	Total
	Ditches	miles	*953*	*1,072*	*1,365*	*919*	*1,004*	*1,940*	*4,016*	*3,237*	*7,253*
	Cross culverts	each	*8,628*	*4,419*	*10,031*	*5,447*	*6,102*	*7,867*	*18,388*	*24,106*	*42,494*
	Catch basins / Inlets	each	*15,191*	*1,920*	*6,650*	*4,052*	*2,761*	*2,957*	*7,638*	*25,893*	*33,531*
	Retention/Detention basins	each	53	-	35	2	-	1	1	90	91

Group 3-Roadside & Landscape Maintenance

			Region						Eastern	Western	Statewide
#	Item	Unit	NW	NC	OLY	SW	SC	Eastern	Washington	Washington	Total
	Roadside	acres	*12,407*	*10,329*	*7,841*	*8,338*	*13,871*	*16,478*	*40,678*	*28,586*	*69,264*
	Noxious weeds	acres	*217*	*339*	*52*	*170*	*511*	*363*	*1,213*	*439*	*1,652*
	Nuisance weeds	acres	*1,132*	*432*	*897*	*783*	*962*	*799*	*2,193*	*2,812*	*5,005*
	Vegetation obstructions	linear feet	*20,105*	*2,173*	*5,071*	*103,366*	*2,089*	*6,125*	*10,387*	*128,542*	*138,929*
	Landscaping	acres	735	-	325	125	30	50	80	1,185	1,265

Group 4-Bridge & Tunnel Maintenance

			Region						Eastern	Western	Statewide
#	Item	Unit	NW	NC	OLY	SW	SC	Eastern	Washington	Washington	Total
	Bridges (total)	each	1,173	196	606	442	505	369	1,070	2,221	3,291
	Movable Bridges	each	11	0	7	0	1	0	1	18	19
	Urban Tunnels	each	23	0	0	0	0	0	0	23	23
	Keller Ferry	each	0	0	0	0	0	1	1	0	1

Group 6-Traffic Services

			Region						Eastern	Western	Statewide

#	Item	Unit	NW	NC	OLY	SW	SC	Eastern Washington	Western Washington	Total
	Pavement Striping	miles	3,350	3,714	4,875	3,200	5,000	3,714	12,428	11,425	23,853
	Raised Pavement Markers	miles	5,470	45	2,137	418	200	190	435	8,025	8,460
	Pavement Markings	each	12,769	3,355	8,798	4,033	3,500	1,925	8,780	25,600	34,380
	Signs (total)	each	24,070	16,536	32,208	20,749	22,000	21,923	60,459	77,027	137,486
	Regulatory Signs	each	6,102	3,592	9,371	5,014	4,000	6,115	13,707	20,487	34,194
	Advisory Signs	each	17,968	12,944	22,837	15,735	18,000	15,808	46,752	56,540	103,292
	Guideposts	each	130,800	*30,591*	*29,312*	28,000	45,000	20,000	*95,591*	*188,112*	*283,703*
	Guardrail	linear feet	*2,525,221*	*1,581,760*	*1,301,877*	*1,710,215*	*2,293,744*	*1,319,164*	*5,194,668*	*5,537,313*	*10,731,981*
	Signals	each	736	89	400	151	94	46	229	1,287	1,516
	Traffic signals	each	390	34	252	97	52	25	111	739	850
	Beacons / Flashers	each	346	55	150	54	42	21	118	550	668
	Highway lights	each	23,575	1,295	5,406	3,074	2,000	1,535	4,830	32,055	36,885
	SC& DI System Devices	each	1,234	6	41	15	122	5	133	1,290	1,423
	Safety devices	each	740	0	0	5	12	0	12	745	757
	Information devices	each	494	6	35	9	110	5	121	538	659
	Communication systems	each	17	0	6	1	5	0	5	24	29

Group 7-Rest Areas

			Region						Eastern	Western	Statewide
#	Item	Unit	NW	NC	OLY	SW	SC	Eastern	Washington	Washington	Total
	Rest Areas	each	8	6	3	8	11	10	27	19	46
	Interstate Rest Areas	each	8	2	2	4	8	5	15	14	29
	Non-Interstate Rest Areas	each	0	4	1	4	3	5	12	5	17

Notes:

(1) Numbers in *Italic* are calculated populations based on the MAP surveys for calendar year 1999.

Chapter 7

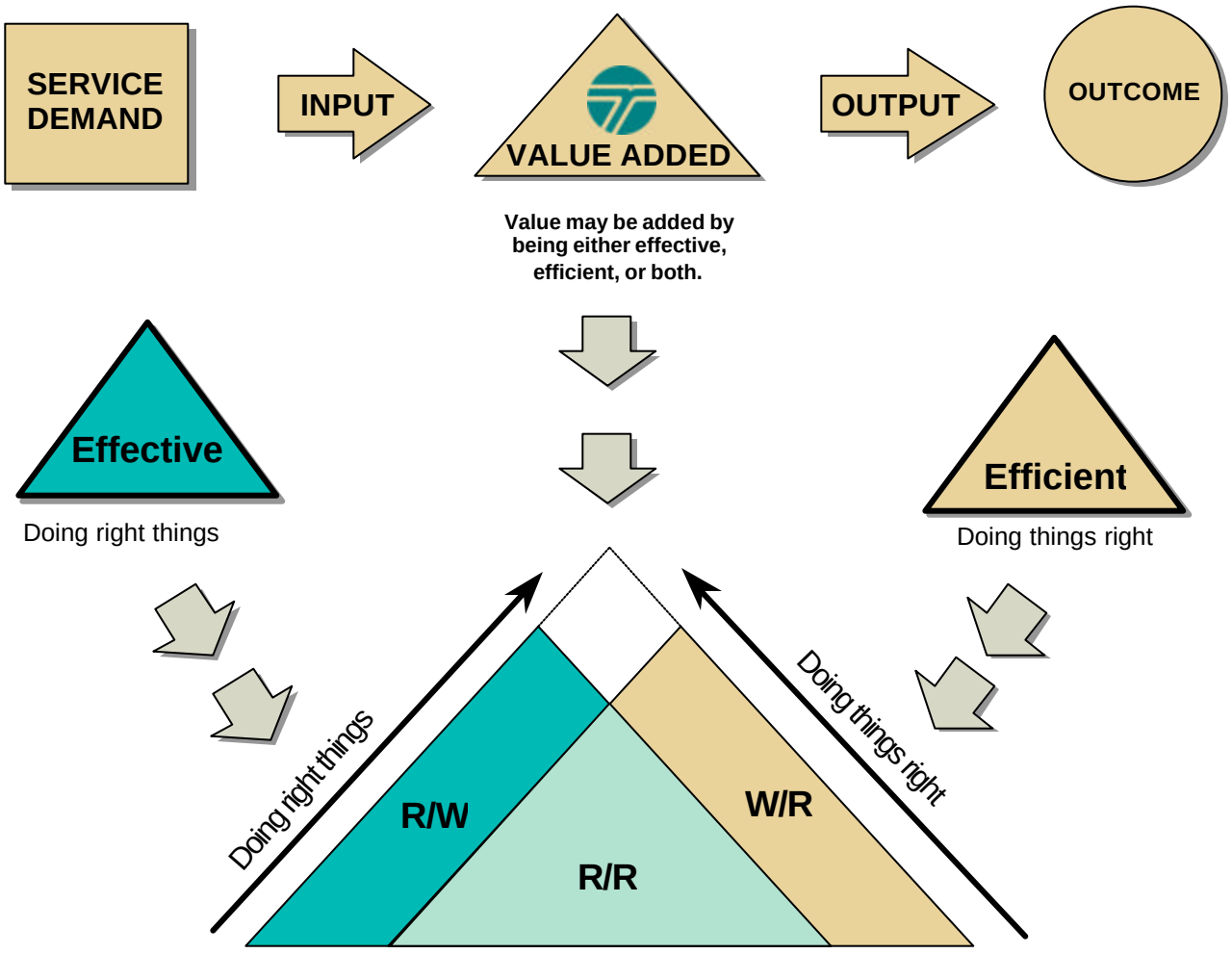
Accountability

Accountability

Demonstrating effectiveness & efficiency

Doing right things right

Measuring Performance



Level Of Delivery- Value Added

Legend:

R/R	- Doing right things right, maximum value added
R/W	- Doing right things wrong
W/R	- Doing wrong things right

Effectiveness (Doing right things)

Measure the result (outcome) achieved. Assesses the results caused by the program. Were objectives met?

OBJECTIVES

Examples:

MAP

Service Level Outcomes 1997-99 Biennium		
	Target	**Met or Exceeded**
M2 Subprogram	C	✓
Maintenance Component	C	✓
Operations Component	C+	✓
Groups	6 of 7 rated	✓
MAP Activities	11 of 13 highest rated priorities	✓

Cost-effectiveness =

The cost per unit of outcome.

INPUT ÷ OUTCOME

Examples: Cost to achieve current service

MAP

Service Level Unit Costs*		
	Rating	**$ per System Mile**
M2 Subprogram	C+	$15,718**
Maintenance Component	C+	$7,470
Operations Component	B-	$8,248 **
Roadway Maint. Group	B	$2,928
Snow & Ice Control Group	C+	$3,185

* Unit costs are for one year in FY 99 dollars.

** Does not include Disaster Operation $$$

1998

Outcome Calculation

Region Inventory Data

	Highway Mileage				Bridges				Roadside		
Region	**Centerline**	**% of state**	**Lane**	**% of state**	**Quantity**	**% of State**	**Deck Area**	**% of State**	**Acres**	**% of State**	**Lnspe**
Northwest	1,195.87	16.92%	3,742.18	20.82%	1,173	35.64%	22,148,697	50.85%	17,500	17.95%	735
North Central	1,133.96	16.05%	2,472.30	13.76%	196	5.96%	1,329,762	3.05%	17,200	17.64%	5
Olympic	1,107.85	15.68%	2,846.94	15.84%	606	18.41%	7,001,953	16.07%	13,100	13.44%	325
Southwest	986.49	13.96%	2,372.93	13.20%	442	13.43%	5,085,831	11.68%	13,000	13.33%	125
South Central	1,074.30	15.20%	2,931.84	16.31%	505	15.34%	5,375,571	12.34%	18,200	18.67%	30
Eastern	1,567.68	22.19%	3,606.31	20.07%	369	11.21%	2,619,352	6.01%	18,500	18.97%	50
State Total	7,066.15	100.00%	17,972.50	100.00%	3,291	100.00%	43,561,165	100.00%	97,500	100.00%	1,270

Outcome Calculation Legend

99$$ - Expenditure inflated to fiscal year 1999 dollars
C/L M - Centerline miles
FYE - Fiscal Year Expenditure
IF - Inflation Factor
LM - Lane mile
LSL - Letter Service Level
NSL - Numeric Service Level
SL - Service Level
TI - Traffic Index
WI - Weather Index

Fiscal Year 1998

Outcome Calculations

State Total includes all region and Olympia Service Center expenditures

M2* IF = 1.028720627

	Inputs			Outputs	Traffic	Indexed	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% of state**	**$ per C/L M**	**Index (TI)**	**$ per C/L M**	**NSL**	**LSL**
Northwest	28,782,586.70	29,609,240.64	26.86%	24,759.58	2.64	9,378.63	3.16	C+
North Central	11,545,201.72	11,876,787.15	10.77%	10,473.73	1.26	8,312.48	2.76	B-
Olympic	19,295,769.77	19,849,956.38	18.01%	17,917.55	2.04	8,783.11	3.24	C+
Southwest	13,422,115.34	13,807,606.91	12.53%	13,996.70	1.52	9,208.36	3.23	C+
South Central	15,922,098.96	16,379,391.63	14.86%	15,246.57	1.63	9,353.72	2.76	B-
Eastern	15,312,020.04	15,751,790.86	14.29%	10,047.84	1.36	7,388.11	2.97	B-
State Total	107,159,555.12	110,237,244.73	100.00%	15,600.75	1.73	9,017.77	3.19	C+

* M2 = All of M2 expenditures less (Disaster Operations 40XX)

Group 1

	Inputs			Outputs	Traffic	Indexed	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% state G1**	**$ per L M**	**Index**	**$ per L M**	**NSL**	**LSL**
Northwest	3,900,341.19	4,012,361.43	19.38%	$ 1,072.20	2.64	$ 406.14	2.84	B-
North Central	3,439,923.02	3,538,719.77	17.09%	$ 1,431.35	1.26	$ 1,135.99	2.83	B-
Olympic	4,651,315.99	4,784,904.70	23.11%	$ 1,680.72	2.04	$ 823.88	3.17	C+
Southwest	2,589,835.79	2,664,217.50	12.87%	$ 1,122.75	1.52	$ 738.65	2.79	B-
South Central	2,287,014.90	2,352,699.40	11.36%	$ 802.47	1.63	$ 492.31	2.57	B
Eastern	3,244,381.23	3,337,561.89	16.12%	$ 925.48	1.36	$ 680.50	2.92	B-
State Total	20,125,334.62	20,703,346.85	100.00%	$ 1,151.95	1.73	$ 665.86	2.97	B-

Group 3

	Inputs			Outputs		Annual	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% state G3**	**Est. Acres**	**$ per Acre**	**Precipitation**	**NSL**	**LSL**
Northwest	2,741,994.36	2,820,746.16	27.99%	17,500.00	$ 161.19	39.68	2.27	B
North Central	820,640.49	844,209.80	8.38%	17,200.00	$ 49.08	12.38	2.23	B+
Olympic	2,214,676.73	2,278,283.63	22.61%	13,100.00	$ 173.91	57.76	3.04	C+
Southwest	1,361,789.31	1,400,900.75	13.90%	13,000.00	$ 107.76	57.08	3.57	C
South Central	1,077,224.19	1,108,162.74	11.00%	18,200.00	$ 60.89	11.65	2.55	B
Eastern	1,422,914.43	1,463,781.42	14.53%	18,500.00	$ 79.12	21.21	3.01	C+
State Total	9,795,742.27	10,077,082.13	100.00%	97,500.00	$ 103.35	33.29	3.29	C

Fiscal Year 1998
Outcome Calculations

State Total includes all region and Olympia Service Center expenditures

Group 4

	Inputs			Outputs	Traffic	Indexed	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% state G4**	**$ sq ft deck**	**Index**	**$ per sq.ft.**	**NSL**	**LSL**
Northwest	4,314,004.04	4,437,904.94	53.97%	$ 0.200	2.64	$ 0.076	3.24	C+
North Central	129,633.33	133,356.48	1.62%	$ 0.100	1.26	$ 0.080	4.03	D+
Olympic	1,637,458.22	1,684,487.05	20.49%	$ 0.241	2.04	$ 0.118	4.96	D-
Southwest	923,926.91	950,462.67	11.56%	$ 0.187	1.52	$ 0.123	3.56	C
South Central	432,611.85	445,036.73	5.41%	$ 0.083	1.63	$ 0.051	3.34	C
Eastern	549,983.76	565,779.64	6.88%	$ 0.216	1.36	$ 0.159	4.13	D+
State Total	7,993,397.12	8,222,972.50	100.00%	$ 0.189	1.73	$ 0.109	3.50	C

Group 5

	Inputs			Outputs	Traffic	Indexed	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% state G5**	**$ per L M**	**Index**	**$ per L M**	**NSL**	**LSL**
Northwest	2,299,472.15	2,365,514.43	11.11%	$ 632.12	2.64	$ 239.44	4.10	D+
North Central	3,461,945.67	3,561,374.92	16.72%	$ 1,440.51	1.26	$ 1,143.26	2.80	B-
Olympic	1,332,683.90	1,370,959.42	6.44%	$ 481.56	2.04	$ 236.06	3.50	C
Southwest	2,056,842.90	2,115,916.72	9.94%	$ 891.69	1.52	$ 586.64	2.70	B
South Central	5,760,504.77	5,925,950.08	27.82%	$ 2,021.24	1.63	$ 1,240.02	3.50	C
Eastern	4,591,776.50	4,723,655.20	22.18%	$ 1,309.83	1.36	$ 963.11	2.70	B
State Total	20,702,636.75	21,297,229.46	100.00%	$ 1,184.99	1.73	$ 684.97	3.20	C+

Fiscal Year 1997

Outcome Calculations

State Total includes all region and Olympia Service Center expenditures

M2* IF = 1.0544157

	Inputs			Outputs	Traffic	Indexed	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% of state**	**$ per C/L M**	**Index (TI)**	**$ per C/L M**	**NSL**	**LSL**
Northwest	30,593,074.82	32,257,818.40	27.35%	26,974.35	2.64	10,217.56	3.18	B+
North Central	13,087,972.35	13,800,163.53	11.70%	12,169.89	1.26	9,658.64	3.29	B
Olympic	17,407,849.73	18,355,110.06	15.56%	16,568.23	2.04	8,121.68	3.35	B
Southwest	15,659,525.85	16,511,649.91	14.00%	16,737.78	1.52	11,011.70	3.20	B+
South Central	17,638,007.62	18,597,792.15	15.77%	17,311.54	1.63	10,620.58	3.30	B
Eastern	14,718,536.27	15,519,455.72	13.16%	9,899.63	1.36	7,279.14	3.02	B+
State Total	111,846,809.71	117,933,032.15	100.00%	16,689.86	1.73	9,647.32	3.39	B

* M2 = All of M2 expenditures less (Disaster Operations 40XX)

Group 1

	Inputs			Outputs	Traffic	Indexed	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% state G1**	**$ per L M**	**Index**	**$ per L M**	**NSL**	**LSL**
Northwest	4,081,409.55	4,303,502.31	19.71%	1,150.00	2.64	$ 435.61	2.65	B
North Central	3,528,630.35	3,720,643.24	17.04%	1,504.93	1.26	$ 1,194.39	3.21	C+
Olympic	4,079,687.79	4,301,686.86	19.70%	1,510.99	2.04	$ 740.68	2.61	B
Southwest	3,108,242.31	3,277,379.49	15.01%	1,381.15	1.52	$ 908.65	2.48	B
South Central	2,388,534.51	2,518,508.29	11.54%	859.02	1.63	$ 527.01	2.61	B
Eastern	2,804,515.21	2,957,124.87	13.54%	819.99	1.36	$ 602.93	2.89	B-
State Total	20,706,471.60	21,833,228.75	100.00%	1,214.81	1.73	$ 702.20	2.82	B-

State Total includes OSC expenditures

Group 3

	Inputs			Outputs		Annual	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% state G3**	**Est. Acres**	**$ per Acre**	**Precipitation**	**NSL**	**LSL**
Northwest	2,797,231.96	2,949,445.30	29.27%	17,500.00	$ 168.54	40.93	3.16	C+
North Central	718,440.32	757,534.75	7.52%	17,200.00	$ 44.04	11.03	3.75	C-
Olympic	2,066,011.08	2,178,434.52	21.62%	13,100.00	$ 166.29	54.08	3.56	C
Southwest	1,459,517.88	1,538,938.57	15.27%	13,000.00	$ 118.38	55.43	3.05	C+
South Central	931,917.56	982,628.51	9.75%	18,200.00	$ 53.99	12.92	3.09	C+
Eastern	1,197,689.19	1,262,862.29	12.53%	18,500.00	$ 68.26	16.25	3.33	C
State Total	9,557,041.00	10,077,094.08	100.00%	97,500.00	$ 103.35	31.77	3.70	C

Fiscal Year 1997
Outcome Calculations
State Total includes all region and Olympia Service Center expenditures

Group 4

	Inputs			Outputs	Traffic	Indexed	Outcome Rating (SL)	
Region	Expenditure*(FYE)	Expend in 99$$	% state G4	$ sq ft deck	Index	$ per sq.ft.	NSL	LSL
Northwest	4,663,151.57	4,916,900.23	55.25%	0.222	2.64	$ 0.08	3.72	C
North Central	50,647.31	53,403.32	0.60%	0.040	1.26	$ 0.032	5.23	F+
Olympic	1,822,416.53	1,921,584.60	21.59%	0.274	2.04	$ 0.135	4.03	D+
Southwest	935,331.73	986,228.46	11.08%	0.194	1.52	$ 0.128	4.53	D
South Central	408,649.69	430,886.65	4.84%	0.080	1.63	$ 0.049	5.81	F-
Eastern	465,324.94	490,645.92	5.51%	0.187	1.36	$ 0.138	4.25	D+
State Total	8,440,303.73	8,899,588.77	100.00%	0.204	1.73	$ 0.118	4.29	D

Group 5

	Inputs			Outputs	Traffic	Indexed	Outcome Rating (SL)	
Region	Expenditure*(FYE)	Expend in 99$$	% state G5	$ per L M	Index	$ per L M	NSL	LSL
Northwest	3,304,752.24	3,484,582.65	13.09%	931.16	2.64	$ 352.71	4.10	D+
North Central	4,712,727.27	4,969,173.62	18.67%	2,009.94	1.26	$ 1,595.19	2.80	B-
Olympic	1,370,104.87	1,444,660.09	5.43%	507.44	2.04	$ 248.75	3.50	C
Southwest	2,283,728.27	2,407,998.94	9.05%	1,014.78	1.52	$ 667.62	2.70	B
South Central	8,010,903.83	8,446,822.77	31.73%	2,881.07	1.63	$ 1,767.52	3.50	C
Eastern	5,484,239.02	5,782,667.73	21.72%	1,603.49	1.36	$ 1,179.03	2.70	B
State Total	25,248,072.13	26,621,963.65	100.00%	1,481.26	1.73	$ 856.22	3.20	C+

Fiscal Year 1996

Outcome Calculations

State Total includes all region and Olympia Service Center expenditures

M2* IF = 1.076502732

	Inputs			Outputs	Traffic	Indexed	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% of state**	**$ per C/L M**	**Index (TI)**	**$ per C/L M**	**NSL**	**LSL**
Northwest	27,529,487.25	29,635,568.24	28.09%	24,781.60	2.64	9,386.97	3.13	C+
North Central	11,114,456.03	11,964,742.28	11.34%	10,551.29	1.26	8,374.04	2.88	B-
Olympic	17,381,542.02	18,711,277.47	17.74%	16,889.72	2.04	8,279.28	3.79	C-
Southwest	10,941,174.20	11,778,203.92	11.17%	11,939.51	1.52	7,854.94	3.50	C
South Central	14,806,720.79	15,939,475.38	15.11%	14,837.08	1.63	9,102.50	3.30	C
Eastern	14,512,614.78	15,622,869.46	14.81%	9,965.60	1.36	7,327.65	2.71	B
State Total	97,993,491.50	105,490,261.32	100.00%	14,928.96	1.73	8,629.46	3.70	C

* M2 = All of M2 expenditures less (Disaster Operations 40XX)

Group 1

	Inputs			Outputs	Traffic	Indexed	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% state G1**	**$ per L M**	**Index**	**$ per L M**	**NSL**	**LSL**
Northwest	4,042,869.14	4,352,159.67	20.39%	1,163.00	2.64	$ 440.53	2.91	B-
North Central	3,030,797.34	3,262,661.62	15.29%	1,319.69	1.26	$ 1,047.37	2.29	B
Olympic	4,419,378.92	4,757,473.48	22.29%	1,671.08	2.04	$ 819.16	3.16	C+
Southwest	2,439,420.49	2,626,042.82	12.30%	1,106.67	1.52	$ 728.07	3.19	C+
South Central	2,375,162.51	2,556,868.93	11.98%	872.10	1.63	$ 535.03	2.69	C
Eastern	3,350,010.24	3,606,295.18	16.90%	1,000.00	1.36	$ 735.29	2.26	B
State Total	19,828,033.07	21,344,931.77	100.00%	1,187.64	1.73	$ 686.50	3.02	C+

State Total includes OSC expenditures

Group 3

	Inputs			Outputs		Annual	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% state G3**	**Est. Acres**	**$ per Acre**	**Precipitation**	**NSL**	**LSL**
Northwest	2,240,179.28	2,411,559.12	32.43%	17,500.00	$ 137.80	46.73	3.68	C
North Central	486,443.31	523,657.55	7.04%	17,200.00	$ 30.45	11.78	3.73	C
Olympic	1,558,587.88	1,677,824.11	22.56%	13,100.00	$ 128.08	61.46	4.44	D
Southwest	837,234.63	901,285.37	12.12%	13,000.00	$ 69.33	64.73	4.20	D
South Central	710,669.66	765,037.83	10.29%	18,200.00	$ 42.04	13.64	3.41	C
Eastern	956,761.71	1,029,956.59	13.85%	18,500.00	$ 55.67	22.29	2.84	B-
State Total	6,908,246.76	7,436,746.51	100.00%	97,500.00	$ 76.27	36.77	4.15	D+

Fiscal Year 1996
Outcome Calculations

State Total includes all region and Olympia Service Center expenditures

Group 4

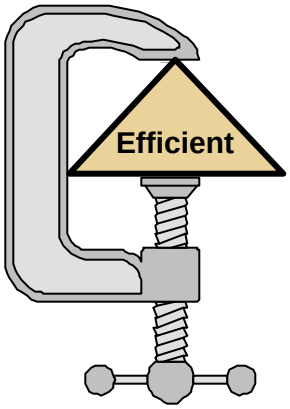
	Inputs			Outputs	Traffic	Indexed	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% state G4**	**$ sq ft deck**	**Index**	**$ per sq.ft.**	**NSL**	**LSL**
Northwest	4,215,433.26	4,537,925.42	55.83%	0.205	2.64	$ 0.078		
North Central	44,249.59	47,634.80	0.59%	0.036	1.26	$ 0.028		
Olympic	1,674,928.70	1,803,065.32	22.18%	0.258	2.04	$ 0.126		
Southwest	666,405.84	717,387.71	8.83%	0.141	1.52	$ 0.093		
South Central	431,524.84	464,537.67	5.71%	0.086	1.63	$ 0.053		
Eastern	518,520.43	558,188.66	6.87%	0.213	1.36	$ 0.157		
State Total	7,551,062.66	8,128,739.58	100.00%	0.187	1.73	$ 0.108	4.59	D

Note: Group 4 Outcomes were not available for Fiscal Year 1996

Group 5

	Inputs			Outputs	Traffic	Indexed	Outcome Rating (SL)	
Region	**Expenditure*(FYE)**	**Expend in 99$$**	**% state G5**	**$ per L M**	**Index**	**$ per L M**	**NSL**	**LSL**
Northwest	2,856,495.01	3,075,024.68	13.94%	821.72	2.64	$ 311.26	4.10	D+
North Central	3,932,266.65	4,233,095.79	19.19%	1,712.21	1.26	$ 1,358.90	2.80	B-
Olympic	1,411,185.40	1,519,144.94	6.89%	533.61	2.04	$ 261.57	3.50	C
Southwest	2,008,881.90	2,162,566.85	9.80%	911.35	1.52	$ 599.57	2.70	B
South Central	5,811,794.14	6,256,412.27	28.36%	2,133.95	1.63	$ 1,309.17	3.50	C
Eastern	4,412,326.88	4,749,881.94	21.53%	1,317.10	1.36	$ 968.46	2.70	B
State Total	20,492,632.14	22,060,374.48	100.00%	1,227.45	1.73	$ 709.51	3.20	C+

Efficiency (Doing things right)

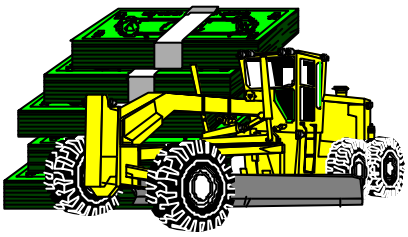


The relationship between the amount of resources (input) required and the quantity of work done (output).

Efficiency = INPUT ÷ OUTPUT

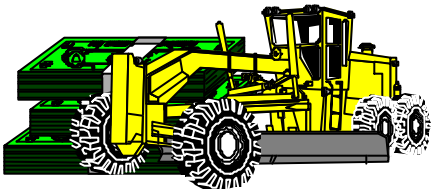
Example #1: Cost of highway maintenance per system mile

National Average



$9,597 per system mile*

WSDOT



$7,487 per system mile*

Example #2: Cost of snow & ice removal per system mile

National Average

$3,753 per system mile*

WSDOT

$2,808 per system mile*

* Source: 1998 JLARC Performance Audit Report to the legislature.
All costs are for one year based on FHWA "Highway Statistics Summary to 1995.

OUTPUT CALCULATION INVENTORY
BY REGION AND AREA

Area Org Code	Area Office Location	Estimated C/L Mile	% of State	Lane Mile	% of State	Estimated Roadside Acres	% of State
	Northwest Region						
4151	Bellingham	210.85	2.98%	415.69	2.31%	3,062	3.14%
4152	Mt. Vernon	310.30	4.39%	626.28	3.48%	4,567	4.68%
4153	Everett	217.52	3.08%	553.73	3.08%	3,225	3.31%
4154	Kent	241.14	3.41%	1,038.46	5.78%	3,475	3.56%
4155	Bellevue	216.08	3.06%	1,108.01	6.17%	3,171	3.25%
	NW Total	1,195.87	16.92%	3,742.18	20.82%	17,500	17.95%
	North Central Region						
4251	Wenatchee	286.94	4.06%	646.37	3.60%	3,720	3.82%
4252	Ephrata	351.41	4.97%	852.53	4.74%	4,994	5.12%
4253	Okanogan	495.61	7.01%	973.40	5.42%	8,486	8.70%
	NC Total	1,133.96	16.05%	2,472.30	13.76%	17,200	17.64%
	Olympic Region						
4351	Tacoma	254.72	3.60%	975.15	5.43%	3,590	3.68%
4352	Pt. Orchard	211.54	2.99%	560.26	3.12%	3,125	3.21%
4353	Pt. Angeles	230.26	3.26%	435.18	2.42%	3,353	3.44%
4354	Aberdeen	411.32	5.82%	876.36	4.88%	3,032	3.11%
	Oly Total	1,107.85	15.68%	2,846.94	15.84%	13,100	13.44%
	Southwest Region						
4451	Vancouver	285.67	4.04%	949.98	5.29%	3,762	3.86%
4452	Chehalis	260.24	3.68%	588.87	3.28%	3,428	3.52%
4453	Raymond	212.02	3.00%	402.08	2.24%	2,788	2.86%
4454	Goldendale	228.55	3.23%	432.00	2.40%	3,022	3.10%
	SW Total	986.49	13.96%	2,372.93	13.20%	13,000	13.33%
	South Central Region						
4551	Cle Elum	186.69	2.64%	670.22	3.73%	3,176	3.26%
4552	Yakima	269.24	3.81%	697.90	3.88%	4,575	4.69%
4553	Pasco	373.78	5.29%	1,092.84	6.08%	6,291	6.45%
4554	Walla Walla	244.60	3.46%	470.88	2.62%	4,158	4.26%
	SC Total	1,074.30	15.20%	2,931.84	16.31%	18,200	18.67%
	Eastern Region						
4651	Spokane	345.31	4.89%	1,027.67	5.72%	4,468	4.58%
4652	Colfax	435.86	6.17%	863.30	4.80%	5,599	5.74%
4653	Davenport	336.37	4.76%	832.34	4.63%	4,372	4.48%
4654	Colville	450.15	6.37%	883.00	4.91%	4,061	4.17%
	E Total	1,567.68	22.19%	3,606.31	20.07%	18,500	18.97%
	Northwest, Olympic & Southwest Regions						
	Subtotal	3,290.21	46.56%	8,962.05	49.87%	43,600.00	44.72%
	North Central, South Central, & Eastern						
	Subtotal	3,775.94	53.44%	9,010.45	50.13%	53,900.00	55.28%
	Statewide Total						
	Total	7,066.15		17,972.50		97,500.00	100.00%

Note:

1 Basis of mileage data TDO Office - TRIPS System reports

2 Basis of roadside acres Roadside Vegetation Management Final EIS

Fiscal Year 1998

M2

Inflation factor = 1.028720627

Org. Num.	Inputs: Total M2* (FYE)	Inputs: % of state	Inputs: Infl. 1999$$	Outputs: $ per C/L M	Traffic Index (TI)	Indexed $ per C/L mile
Northwest Region						
4151	2,994,907.12	2.79%	3,080,922.73	$ 14,612.19	2.03	$ 7,198.13
4152	2,759,562.89	2.58%	2,838,819.27	$ 9,148.75	1.87	$ 4,892.38
4153	3,293,522.45	3.07%	3,388,114.48	$ 15,576.39	2.98	$ 5,226.98
4154	3,160,462.56	2.95%	3,251,233.03	$ 13,482.98	2.85	$ 4,730.87
4155	6,400,041.99	5.97%	6,583,855.21	$ 30,470.09	3.86	$ 7,893.81
NWR Total	**28,782,586.70**	**26.86%**	**29,609,240.64**	**$ 24,759.58**	**2.64**	**$ 9,378.63**
North Central Region						
4251	3,570,685.85	3.33%	3,673,238.19	$ 12,801.30	1.35	$ 9,482.45
4252	2,462,985.39	2.30%	2,533,723.87	$ 7,210.11	1.65	$ 4,369.77
4253	4,311,967.30	4.02%	4,435,809.70	$ 8,950.29	0.92	$ 9,728.58
NCR Total	**11,545,201.72**	**10.77%**	**11,876,787.15**	**$ 10,473.73**	**1.26**	**$ 8,312.48**
Olympic Region						
4351	5,851,544.06	5.46%	6,019,604.07	$ 23,632.01	2.58	$ 9,159.69
4352	3,326,953.53	3.10%	3,422,505.72	$ 16,178.81	2.42	$ 6,685.46
4353	2,643,370.12	2.47%	2,719,289.37	$ 11,809.52	1.45	$ 8,144.50
4354	3,437,733.54	3.21%	3,536,467.40	$ 8,597.80	1.59	$ 5,407.42
OR Total	**19,295,769.77**	**18.01%**	**19,849,956.38**	**$ 17,917.55**	**2.04**	**$ 8,783.11**
Southwest Region						
4451	2,925,330.19	2.73%	3,009,347.51	$ 10,534.26	2.34	$ 4,501.82
4452	3,155,807.93	2.94%	3,246,444.71	$ 12,474.69	1.47	$ 8,486.18
4453	2,128,708.07	1.99%	2,189,845.90	$ 10,328.37	1.12	$ 9,221.76
4454	1,866,960.21	1.74%	1,920,580.48	$ 8,403.24	0.97	$ 8,663.13
SWR Total	**13,422,115.34**	**12.53%**	**13,807,606.91**	**$ 13,996.70**	**1.52**	**$ 9,208.36**
South Central Region						
4551	5,506,469.39	5.14%	5,664,618.64	$ 30,342.78	1.79	$ 16,951.28
4552	2,992,733.63	2.79%	3,078,686.82	$ 11,434.84	1.62	$ 7,058.54
4553	3,149,650.23	2.94%	3,240,110.16	$ 8,668.55	1.88	$ 4,610.93
4554	2,260,653.65	2.11%	2,325,581.04	$ 9,507.79	1.119	$ 8,496.68
SCR Total	**15,922,098.96**	**14.86%**	**16,379,391.63**	**$ 15,246.57**	**1.63**	**$ 9,353.72**
Eastern Region						
4651	3,587,337.76	3.35%	3,690,368.35	$ 10,687.19	2.16	$ 4,947.78
4652	2,817,192.23	2.63%	2,898,103.76	$ 6,649.20	1.13	$ 5,884.25
4653	3,629,469.19	3.39%	3,733,709.82	$ 11,100.09	1.35	$ 8,222.29
4654	3,735,924.17	3.49%	3,843,222.25	$ 8,537.70	1.09	$ 7,832.75
ER Total	**15,312,020.04**	**14.29%**	**15,751,790.86**	**$ 10,047.84**	**1.36**	**$ 7,388.11**
Statewide	**107,159,555.12**	**100.00%**	**110,237,244.73**	**$ 15,600.75**	**1.73**	**$ 9,017.77**

Notes:

1. M2 is all expenditures less Disaster Operations (40XX)
2. Region total includes all region expenditures to M2 (Operations, special crews, design, etc.)
3. Statewide total includes all region and Olympia Service Center expenditures
4. Service level outcomes have not been determined at the area level

Fiscal Year 1998

Group 1

Inflation factor = 1.028720627

	Inputs			Outputs	Traffic	Indexed
Org Num	Group 1	% of state G5	Infl. 1999$$	$ per L M	Index	$ per C/L mile
Northwest Region						
4151	580,533.83	2.88%	597,207.13	$ 1,436.66	2.03	$ 707.71
4152	871,475.31	4.33%	896,504.63	$ 1,431.47	1.87	$ 765.49
4153	780,783.51	3.88%	803,208.10	$ 1,450.54	2.98	$ 486.76
4154	546,447.09	2.72%	562,141.39	$ 541.32	2.85	$ 189.94
4155	1,119,819.02	5.56%	1,151,980.92	$ 1,039.68	3.86	$ 269.35
NWR Total	**3,900,341.19**	**19.38%**	**4,012,361.43**	**$ 1,072.20**	**2.64**	**$ 406.14**
North Central Region						
4251	960,558.95	4.77%	988,146.81	$ 1,528.76	1.35	$ 1,132.42
4252	847,983.65	4.21%	872,338.27	$ 1,023.23	1.65	$ 620.14
4253	1,618,187.10	8.04%	1,664,662.45	$ 1,710.15	0.92	$ 1,858.86
NCR Total	**3,439,923.02**	**17.09%**	**3,538,719.77**	**$ 1,431.35**	**1.26**	**$ 1,135.99**
Olympic Region						
4351	1,582,235.66	7.86%	1,627,678.46	$ 1,669.16	2.58	$ 646.96
4352	889,361.11	4.42%	914,904.12	$ 1,633.01	2.42	$ 674.80
4353	1,014,344.62	5.04%	1,043,477.23	$ 2,397.82	1.45	$ 1,653.67
4354	1,126,431.73	5.60%	1,158,783.56	$ 1,322.27	1.59	$ 831.62
OR Total	**4,651,315.99**	**23.11%**	**4,784,904.70**	**$ 1,680.72**	**2.04**	**$ 823.88**
Southwest Region						
4451	715,627.10	3.56%	736,180.36	$ 774.94	2.34	$ 331.17
4452	583,168.74	2.90%	599,917.71	$ 1,018.76	1.47	$ 693.03
4453	709,300.78	3.52%	729,672.34	$ 1,814.74	1.12	$ 1,620.31
4454	481,942.96	2.39%	495,784.66	$ 1,147.65	0.97	$ 1,183.14
SWR Total	**2,589,835.79**	**12.87%**	**2,664,217.50**	**$ 1,122.75**	**1.52**	**$ 738.65**
South Central Region						
4551	426,917.40	2.12%	439,178.74	$ 655.28	1.79	$ 366.08
4552	688,926.17	3.42%	708,712.56	$ 1,015.49	1.62	$ 626.85
4553	667,947.50	3.32%	687,131.37	$ 628.76	1.88	$ 334.45
4554	488,174.08	2.43%	502,194.75	$ 1,066.50	1.119	$ 953.09
SCR Total	2,287,014.90	11.36%	2,352,699.40	$ 802.47	**1.63**	**$ 492.31**
Eastern Region						
4651	748,419.94	3.72%	769,915.03	$ 749.19	2.16	$ 346.84
4652	817,242.35	4.06%	840,714.06	$ 973.84	1.13	$ 861.80
4653	715,558.80	3.56%	736,110.10	$ 884.39	1.35	$ 655.10
4654	936,430.74	4.65%	963,325.62	$ 1,090.97	1.09	$ 1,000.89
ER Total	**3,244,381.23**	**16.12%**	**3,337,561.89**	**$ 925.48**	**1.36**	**$ 680.50**
Statewide	**20,125,334.62**	**100.00%**	**20,703,346.85**	**$ 1,151.95**	**1.73**	**$ 665.86**

Notes:

1 Region total includes all region expenditures to M2 (Operations, special crews, design, etc.)

2 Statewide total includes all region and Olympia Service Center expenditures

Fiscal Year 1998

Group 3

Inflation factor = 1.028720627

Org Num	Inputs: Group 3	Inputs: % of state G5	Inputs: Infl. 1999$$	Output: $ per acre	Annual Precip.
Northwest Region					
4151	242,007.14	2.47%	248,957.74	$ 81.31	35.55
4152	296,435.63	3.03%	304,949.45	$ 66.77	31.99
4153	462,981.06	4.73%	476,278.17	$ 147.68	39.94
4154	463,213.87	4.73%	476,517.66	$ 137.13	42.78
4155	1,188,705.71	12.13%	1,222,846.08	$ 385.63	44.06
NWR Total	**2,741,994.36**	**27.99%**	**2,820,746.16**	**$ 161.19**	**39.68**
North Central Region					
4251	127,759.12	1.30%	131,428.44	$ 35.33	12
4252	412,882.50	4.21%	424,740.74	$ 85.05	10.78
4253	228,553.94	2.33%	235,118.15	$ 27.71	16.93
NCR Total	**820,640.49**	**8.38%**	**844,209.80**	**$ 49.08**	**12.38**
Olympic Region					
4351	854,743.41	8.73%	879,292.18	$ 244.93	40.01
4352	401,321.30	4.10%	412,847.50	$ 132.11	70.46
4353	499,755.00	5.10%	514,108.28	$ 153.33	25.68
4354	275,113.89	2.81%	283,015.33	$ 93.34	94.89
OR Total	**2,214,676.73**	**22.61%**	**2,278,283.63**	**$ 173.91**	**57.76**
Southwest Region					
4451	542,804.91	5.54%	558,394.61	$ 148.43	50.23
4452	278,323.41	2.84%	286,317.03	$ 83.52	56.8
4453	342,773.10	3.50%	352,617.76	$ 126.48	104.17
4454	168,552.09	1.72%	173,393.01	$ 57.38	17.13
SWR Total	**1,361,789.31**	**13.90%**	**1,400,900.75**	**$ 107.76**	**57.08**
South Central Region					
4551	189,766.16	1.94%	195,216.36	$ 61.47	20.32
4552	293,689.99	3.00%	302,124.95	$ 66.04	7.58
4553	352,891.43	3.60%	363,026.69	$ 57.71	7.06
4554	201,609.14	2.06%	207,399.48	$ 49.88	19.45
SCR Total	1,077,224.19	11.00%	1,108,162.74	$ 60.89	11.65
Eastern Region					
4651	588,177.75	6.00%	605,070.58	$ 135.42	17.77
4652	175,418.66	1.79%	180,456.79	$ 32.23	19.7
4653	212,513.98	2.17%	218,617.51	$ 50.00	16.83
4654	357,180.38	3.65%	367,438.82	$ 90.48	29.02
ER Total	**1,422,914.43**	**14.53%**	**1,463,781.42**	**$ 79.12**	**21.21**
Statewide	**9,795,742.27**	**100.00%**	**10,077,082.13**	**$ 103.35**	

Notes:

1 Region total includes all region expenditures to M2 (Operations, special crews, design, etc.)

2 Statewide total includes all region and Olympia Service Center expenditures

Fiscal Year 1998

Group 5

Inflation factor = 1.028720627

Org Num	Inputs			Outputs	Traffic	Indexed	Weather
	Group 5	% of state G5	Infl. 1999$$	$ per L M	Index	$ per C/L mile	Index
Northwest Region							
4151	629,494.15	3.04%	647,573.62	$ 1,557.82	2.03	$ 767.40	29.75
4152	408,669.87	1.97%	420,407.12	$ 671.27	1.87	$ 358.97	30.92
4153	364,794.40	1.76%	375,271.52	$ 677.71	2.98	$ 227.42	33.77
4154	523,526.64	2.53%	538,562.65	$ 518.62	2.85	$ 181.97	33.62
4155	361,788.73	1.75%	372,179.53	$ 335.90	3.86	$ 87.02	40.18
NWR Total	**2,299,472.15**	**11.11%**	**2,365,514.43**	**$ 632.12**	**2.64**	**$ 239.44**	**33.65**
North Central Region							
4251	1,607,967.92	7.77%	1,654,149.77	$ 2,559.14	1.35	$ 1,895.66	13.53
4252	396,206.05	1.91%	407,585.34	$ 478.09	1.65	$ 289.75	13.09
4253	1,296,423.82	6.26%	1,333,657.92	$ 1,370.10	0.92	$ 1,489.24	7.7
NCR Total	**3,461,945.67**	**16.72%**	**3,561,374.92**	**$ 1,440.51**	**1.26**	**$ 1,143.26**	**11.69**
Olympic Region							
4351	461,296.23	2.23%	474,544.95	$ 486.64	2.58	$ 188.62	33.99
4352	173,750.10	0.84%	178,740.31	$ 319.03	2.42	$ 131.83	34.06
4353	359,504.52	1.74%	369,829.72	$ 849.84	1.45	$ 586.09	30.22
4354	300,785.15	1.45%	309,423.89	$ 353.08	1.59	$ 222.06	34.57
OR Total	**1,332,683.90**	**6.44%**	**1,370,959.42**	**$ 481.56**	**2.04**	**$ 236.06**	**33.21**
Southwest Region							
4451	354,797.17	1.71%	364,987.17	$ 384.21	2.34	$ 164.19	24.02
4452	964,100.09	4.66%	991,789.65	$ 1,684.23	1.47	$ 1,145.73	33.5
4453	254,884.58	1.23%	262,205.02	$ 652.12	1.12	$ 582.25	21.21
4454	410,319.62	1.98%	422,104.26	$ 977.09	0.97	$ 1,007.31	9.88
SWR Total	**2,056,842.90**	**9.94%**	**2,115,916.72**	**$ 891.69**	**1.52**	**$ 586.64**	**22.15**
South Central Region							
4551	3,321,554.03	16.04%	3,416,951.14	$ 5,098.25	1.79	$ 2,848.19	-14.29
4552	881,291.32	4.26%	906,602.56	$ 1,299.04	1.62	$ 801.88	4.03
4553	735,532.17	3.55%	756,657.12	$ 692.38	1.88	$ 368.29	22.22
4554	681,085.43	3.29%	700,646.63	$ 1,487.95	1.119	$ 1,329.72	13.51
SCR Total	5,760,504.77	27.82%	5,925,950.08	$ 2,021.24	**1.63**	**$ 1,240.02**	6.37
Eastern Region							
4651	1,202,429.52	5.81%	1,236,964.05	$ 1,203.66	2.16	$ 557.25	2.22
4652	745,483.49	3.60%	766,894.24	$ 888.33	1.13	$ 786.13	6.5
4653	1,007,541.87	4.87%	1,036,479.10	$ 1,245.26	1.35	$ 922.41	-0.1
4654	1,635,781.06	7.90%	1,682,761.72	$ 1,905.73	1.09	$ 1,748.38	-1.84
ER Total	**4,591,776.50**	**22.18%**	**4,723,655.20**	**$ 1,309.83**	**1.36**	**$ 963.11**	**1.69**
Statewide	**20,702,636.75**	**100.00%**	**21,297,229.46**	**$ 1,184.99**	**1.73**	**$ 684.97**	**18.13**

Notes:

1 Region total includes all region expenditures to M2 (Operations, special crews, design, etc.)

2 Statewide total includes all region and Olympia Service Center expenditures

Fiscal Year 1997

M2

Inflation factor = 1.0544157

	Inputs			Outputs	Traffic	Indexed
Org. Num.	Total M2*	% of state	Infl. 1999$$	$ per C/L M	Index	$ per C/L mile
Northwest Region						
4151	3,595,338.84	3.21%	3,790,981.72	$ 17,979.86	2.03	$ 8,857.07
4152	3,142,722.58	2.81%	3,313,736.03	$ 10,679.27	1.87	$ 5,710.84
4153	3,428,299.49	3.07%	3,614,852.81	$ 16,618.79	2.98	$ 5,576.78
4154	3,888,962.45	3.48%	4,100,583.06	$ 17,005.27	2.85	$ 5,966.76
4155	6,600,355.40	5.90%	6,959,518.36	$ 32,208.66	3.86	$ 8,344.21
NWR Total	**30,593,074.82**	**27.35%**	**32,257,818.40**	**$ 26,974.35**	**2.64**	**$ 10,217.56**
North Central Region						
4251	4,282,627.39	3.83%	4,515,669.56	$ 15,737.19	1.35	$ 11,657.18
4252	2,388,877.94	2.14%	2,518,870.41	$ 7,167.85	1.65	$ 4,344.15
4253	4,529,992.08	4.05%	4,776,494.77	$ 9,637.70	0.92	$ 10,475.77
NCR Total	**13,087,972.35**	**11.70%**	**13,800,163.53**	**$ 12,169.89**	**1.26**	**$ 9,658.64**
Olympic Region						
4351	5,334,815.99	4.77%	5,625,113.74	$ 22,083.30	2.58	$ 8,559.42
4352	3,236,381.30	2.89%	3,412,491.25	$ 16,131.47	2.42	$ 6,665.90
4353	2,315,093.87	2.07%	2,441,071.32	$ 10,601.25	1.45	$ 7,311.21
4354	3,069,248.20	2.74%	3,236,263.49	$ 7,867.95	1.59	$ 4,948.39
OR Total	**17,407,849.73**	**15.56%**	**18,355,110.06**	**$ 16,568.23**	**2.04**	**$ 8,121.68**
Southwest Region						
4451	3,808,284.94	3.40%	4,015,515.43	$ 14,056.36	2.34	$ 6,006.99
4452	3,665,168.04	3.28%	3,864,610.72	$ 14,850.04	1.47	$ 10,102.07
4453	2,449,313.25	2.19%	2,582,594.35	$ 12,180.76	1.12	$ 10,875.68
4454	2,149,936.35	1.92%	2,266,926.64	$ 9,918.63	0.97	$ 10,225.39
SWR Total	**15,659,525.85**	**14.00%**	**16,511,649.91**	**$ 16,737.78**	**1.52**	**$ 11,011.70**
South Central Region						
4551	6,826,524.82	6.10%	7,197,994.95	$ 38,556.38	1.79	$ 21,539.88
4552	3,251,248.09	2.91%	3,428,167.03	$ 12,732.87	1.62	$ 7,859.80
4553	3,234,005.14	2.89%	3,409,985.79	$ 9,123.04	1.88	$ 4,852.68
4554	2,326,813.91	2.08%	2,453,429.12	$ 10,030.48	1.119	$ 8,963.78
SCR Total	**17,638,007.62**	**15.77%**	**18,597,792.15**	**$ 17,311.54**	**1.63**	**$ 10,620.58**
Eastern Region						
4651	3,867,090.48	3.46%	4,077,520.92	$ 11,808.38	2.16	$ 5,466.84
4652	2,476,061.10	2.21%	2,610,797.70	$ 5,990.03	1.13	$ 5,300.91
4653	3,447,132.29	3.08%	3,634,710.41	$ 10,805.77	1.35	$ 8,004.28
4654	3,340,484.14	2.99%	3,522,258.92	$ 7,824.68	1.09	$ 7,178.60
ER Total	14,718,811.41	**13.16%**	**15,519,745.84**	**$ 9,899.82**	**1.36**	**$ 7,279.28**
Statewide	**111,846,809.71**	**100.00%**	**117,933,032.15**	**$ 16,689.86**	**1.73**	**$ 9,647.32**

Notes:

1 M2 is all expenditures less Disaster Operations (40XX)

2 Region total includes all region expenditures to M2 (Operations, special crews, design, etc.)

3 Statewide total includes all region and Olympia Service Center expenditures

Fiscal Year 1997

Group 1

Inflation factor = 1.054415700

Org Num	Inputs: Group 1	Inputs: % of state G5	Inputs: Infl. 1999$$	Outputs: $ per L M	Traffic Index	Indexed: $ per C/L mile
Northwest Region						
4151	705,031.36	3.40%	743,396.13	$ 1,788.33	2.03	$ 880.95
4152	879,555.22	4.25%	927,416.83	$ 1,480.83	1.87	$ 791.89
4153	785,137.00	3.79%	827,860.78	$ 1,495.06	2.98	$ 501.70
4154	660,494.57	3.19%	696,435.84	$ 670.64	2.85	$ 235.31
4155	1,043,341.67	5.04%	1,100,115.84	$ 992.87	3.86	$ 257.22
NWR Total	**4,081,409.55**	**19.71%**	**4,303,502.31**	**$ 1,150.00**	**2.64**	**$ 435.61**
North Central Region						
4251	952,289.29	4.60%	1,004,108.78	$ 1,553.46	1.35	$ 1,150.71
4252	769,626.65	3.72%	811,506.42	$ 951.88	1.65	$ 576.90
4253	1,552,025.84	7.50%	1,636,480.41	$ 1,681.20	0.92	$ 1,827.39
NCR Total	**3,528,630.35**	**17.04%**	**3,720,643.24**	**$ 1,504.93**	**1.26**	**$ 1,194.39**
Olympic Region						
4351	1,191,730.09	5.76%	1,256,578.92	$ 1,288.60	2.58	$ 499.46
4352	963,239.32	4.65%	1,015,654.66	$ 1,812.84	2.42	$ 749.11
4353	800,462.65	3.87%	844,020.39	$ 1,939.49	1.45	$ 1,337.58
4354	973,516.11	4.70%	1,026,490.67	$ 1,171.31	1.59	$ 736.68
OR Total	**4,079,687.79**	**19.70%**	**4,301,686.86**	**$ 1,510.99**	**2.04**	**$ 740.68**
Southwest Region						
4451	884,167.01	4.27%	932,279.58	$ 981.37	2.34	$ 419.39
4452	787,665.61	3.80%	830,526.99	$ 1,410.37	1.47	$ 959.44
4453	639,737.16	3.09%	674,548.91	$ 1,677.65	1.12	$ 1,497.90
4454	674,593.81	3.26%	711,302.30	$ 1,646.53	0.97	$ 1,697.46
SWR Total	**3,108,242.31**	**15.01%**	**3,277,379.49**	**$ 1,381.15**	**1.52**	**$ 908.65**
South Central Region						
4551	497,447.32	2.40%	524,516.26	$ 782.60	1.79	$ 437.21
4552	671,136.89	3.24%	707,657.27	$ 1,013.98	1.62	$ 625.91
4553	688,411.59	3.32%	725,871.99	$ 664.21	1.88	$ 353.30
4554	528,105.48	2.55%	556,842.71	$ 1,182.56	1.119	$ 1,056.80
SCR Total	2,388,534.51	11.54%	2,518,508.29	$ 859.02	**1.63**	**$ 527.01**
Eastern Region						
4651	744,421.59	3.60%	784,929.81	$ 763.80	2.16	$ 353.61
4652	772,020.20	3.73%	814,030.22	$ 942.93	1.13	$ 834.45
4653	514,925.72	2.49%	542,945.76	$ 652.31	1.35	$ 483.19
4654	758,096.83	3.66%	799,349.20	$ 905.27	1.09	$ 830.52
ER Total	**2,804,515.21**	**13.54%**	**2,957,124.87**	**$ 819.99**	**1.36**	**$ 602.93**
Statewide	**20,706,471.60**	**100.00%**	**21,833,228.75**	**$ 1,214.81**	**1.73**	**$ 702.20**

Notes:

1 Region total includes all region expenditures to M2 (Operations, special crews, design, etc.)

2 Statewide total includes all region and Olympia Service Center expenditures

Fiscal Year 1997

Group 3

Inflation factor = 1.054415700

Org Num	Inputs: Group 3	Inputs: % of state G5	Inputs: Infl. 1999$$	Output: $ per acre	Annual Precip.
Northwest Region					
4151	288,582.64	3.02%	304,286.07	$ 99.37	35.55
4152	287,045.84	3.00%	302,665.64	$ 66.27	38.8
4153	342,337.93	3.58%	360,966.49	$ 111.93	40.46
4154	532,113.50	5.57%	561,068.83	$ 161.46	39.1
4155	1,247,575.96	13.05%	1,315,463.68	$ 414.84	45.37
NWR Total	**2,797,231.96**	**29.27%**	**2,949,445.30**	**$ 168.54**	**40.93**
North Central Region					
4251	243,994.41	2.55%	257,271.54	$ 69.16	9.46
4252	232,917.27	2.44%	245,591.63	$ 49.18	9.42
4253	211,818.71	2.22%	223,344.97	$ 26.32	10.68
NCR Total	**718,440.32**	**7.52%**	**757,534.75**	**$ 44.04**	**11.03**
Olympic Region					
4351	805,190.65	8.43%	849,005.66	$ 236.49	39.59
4352	357,277.19	3.74%	376,718.68	$ 120.55	46.58
4353	275,091.31	2.88%	290,060.60	$ 86.51	23.42
4354	330,197.92	3.46%	348,165.87	$ 114.83	106.73
OR Total	**2,066,011.08**	**21.62%**	**2,178,434.52**	**$ 166.29**	**54.08**
Southwest Region					
4451	579,249.79	6.06%	610,770.07	$ 162.35	50.01
4452	321,537.32	3.36%	339,034.00	$ 98.90	49.45
4453	397,098.05	4.16%	418,706.42	$ 150.18	105.64
4454	124,362.17	1.30%	131,129.42	$ 43.39	16.63
SWR Total	**1,459,517.88**	**15.27%**	**1,538,938.57**	**$ 118.38**	**55.43**
South Central Region					
4551	161,928.96	1.69%	170,740.44	$ 53.76	24.07
4552	270,192.52	2.83%	284,895.24	$ 62.27	6.88
4553	280,471.66	2.93%	295,733.72	$ 47.01	7.8
4554	185,582.74	1.94%	195,681.35	$ 47.06	19.45
SCR Total	**931,917.56**	**9.75%**	**982,628.51**	**$ 53.99**	**12.92**
Eastern Region					
4651	564,885.59	5.91%	595,624.23	$ 133.31	17.45
4652	132,190.47	1.38%	139,383.71	$ 24.89	19.7
4653	171,430.67	1.79%	180,759.19	$ 41.34	11.98
4654	278,763.63	2.92%	293,932.75	$ 72.38	19.33
ER Total	**1,197,689.19**	**12.53%**	**1,262,862.29**	**$ 68.26**	**16.25**
Statewide	**9,557,041.00**	**100.00%**	**10,077,094.08**	**$ 103.35**	**31.77**

Notes:

1 Region total includes all region expenditures to M2 (Operations, special crews, design, etc.)

2 Statewide total includes all region and Olympia Service Center expenditures

Fiscal Year 1997

Group 5

Inflation factor = 1.054415700

	Inputs			Outputs	Traffic	Indexed	Weather
Org Num	Group 5	% of state G5	Infl. 1999$$	$ per L M	Index	$ per C/L mile	Index
Northwest Region							
4151	995,173.95	3.94%	1,049,327.04	$ 2,524.29	2.03	$ 1,243.49	16.38
4152	686,874.31	2.72%	724,251.06	$ 1,156.43	1.87	$ 618.41	26.52
4153	527,859.27	2.09%	556,583.10	$ 1,005.15	2.98	$ 337.30	20.2
4154	704,773.92	2.79%	743,124.69	$ 715.60	2.85	$ 251.09	30
4155	372,575.35	1.48%	392,849.30	$ 354.55	3.86	$ 91.85	25.12
NWR Total	**3,304,752.24**	**13.09%**	**3,484,582.65**	**$ 931.16**	**2.64**	**$ 352.71**	**23.64**
North Central Region							
4251	2,355,879.75	9.33%	2,484,076.60	$ 3,843.12	1.35	$ 2,846.75	-8.06
4252	563,153.40	2.23%	593,797.79	$ 696.51	1.65	$ 422.13	-8.98
4253	1,591,453.92	6.30%	1,678,054.00	$ 1,723.91	0.92	$ 1,873.82	-12.39
NCR Total	**4,712,727.27**	**18.67%**	**4,969,173.62**	**$ 2,009.94**	**1.26**	**$ 1,595.19**	**-7.98**
Olympic Region							
4351	481,997.63	1.91%	508,225.87	$ 521.18	2.58	$ 202.01	31.37
4352	266,911.17	1.06%	281,435.33	$ 502.33	2.42	$ 207.58	22.26
4353	409,522.50	1.62%	431,806.95	$ 992.25	1.45	$ 684.31	28.31
4354	206,379.82	0.82%	217,610.12	$ 248.31	1.59	$ 156.17	30.37
OR Total	**1,370,104.87**	**5.43%**	**1,444,660.09**	**$ 507.44**	**2.04**	**$ 248.75**	**28.08**
Southwest Region							
4451	340,392.52	1.35%	358,915.22	$ 377.81	2.34	$ 161.46	24.96
4452	1,151,355.09	4.56%	1,214,006.88	$ 2,061.59	1.47	$ 1,402.44	26.05
4453	167,368.00	0.66%	176,475.45	$ 438.91	1.12	$ 391.88	22.27
4454	622,636.27	2.47%	656,517.46	$ 1,519.72	0.97	$ 1,566.72	5.98
SWR Total	**2,283,728.27**	**9.05%**	**2,407,998.94**	**$ 1,014.78**	**1.52**	**$ 667.62**	**19.82**
South Central Region							
4551	4,785,211.47	18.95%	5,045,602.10	$ 7,528.28	1.79	$ 4,205.74	-33.31
4552	1,221,388.80	4.84%	1,287,851.53	$ 1,845.32	1.62	$ 1,139.09	13.68
4553	1,115,082.14	4.42%	1,175,760.12	$ 1,075.88	1.88	$ 572.27	16.37
4554	837,172.23	3.32%	882,727.54	$ 1,874.63	1.119	$ 1,675.28	7.35
SCR Total	**8,010,903.83**	**31.73%**	**8,446,822.77**	**$ 2,881.07**	**1.63**	**$ 1,767.52**	**-5.82**
Eastern Region							
4651	1,636,854.01	6.48%	1,725,924.57	$ 1,679.45	2.16	$ 777.53	2.06
4652	879,523.45	3.48%	927,383.33	$ 1,074.23	1.13	$ 950.65	-10
4653	1,328,843.67	5.26%	1,401,153.63	$ 1,683.39	1.35	$ 1,246.96	-17.04
4654	1,636,619.59	6.48%	1,725,677.39	$ 1,954.33	1.09	$ 1,792.97	-18.04
ER Total	**5,484,239.02**	**21.72%**	**5,782,667.73**	**$ 1,603.49**	**1.36**	**$ 1,179.03**	**-10.75**
Statewide	**25,248,072.13**	**100.00%**	**26,621,963.65**	**$ 1,481.26**	**1.73**	**$ 856.22**	**7.83**

Notes:

1 Region total includes all region expenditures to M2 (Operations, special crews, design, etc.)

2 Statewide total includes all region and Olympia Service Center expenditures

Fiscal Year 1996

M2

Inflation factor = 1.076502732

Org. Num.	Inputs: Total M2*	Inputs: % of state	Inputs: Infl. 1999$$	Outputs: $ per C/L M	Traffic Index	Indexed $ per C/L mile
Northwest Region						
4151	2,846,832.71	2.55%	3,064,623.19	$ 14,534.89	2.03	$ 7,160.04
4152	2,753,939.03	2.46%	2,964,622.89	$ 9,554.18	1.87	$ 5,109.19
4153	3,172,410.69	2.84%	3,415,108.77	$ 15,700.49	2.98	$ 5,268.62
4154	3,716,248.56	3.32%	4,000,551.73	$ 16,590.44	2.85	$ 5,821.21
4155	6,209,372.91	5.55%	6,684,406.90	$ 30,935.44	3.86	$ 8,014.36
NWR Total	**27,529,487.25**	**24.61%**	**29,635,568.24**	$ 24,781.60	**2.64**	**$ 9,386.97**
North Central Region						
4251	3,501,828.00	3.13%	3,769,727.41	$ 13,137.57	1.35	$ 9,731.53
4252	2,134,334.73	1.91%	2,297,617.17	$ 6,538.23	1.65	$ 3,962.57
4253	3,862,962.22	3.45%	4,158,489.38	$ 8,390.73	0.92	$ 9,120.36
NCR Total	**11,114,456.03**	**9.94%**	**11,964,742.28**	$ 10,551.29	**1.26**	**$ 8,374.04**
Olympic Region						
4351	5,517,826.78	4.93%	5,939,955.60	$ 23,319.32	2.58	$ 9,038.50
4352	3,070,468.80	2.75%	3,305,368.05	$ 15,625.08	2.42	$ 6,456.64
4353	2,668,501.45	2.39%	2,872,649.10	$ 12,475.54	1.45	$ 8,603.82
4354	3,223,954.57	2.88%	3,470,595.90	$ 8,437.65	1.59	$ 5,306.70
OR Total	**17,381,542.02**	**15.54%**	**18,711,277.47**	$ 16,889.72	**2.04**	**$ 8,279.28**
Southwest Region						
4451	3,004,790.16	2.69%	3,234,664.82	$ 11,322.98	2.34	$ 4,838.88
4452	2,788,099.77	2.49%	3,001,397.02	$ 11,533.08	1.47	$ 7,845.63
4453	1,195,109.08	1.07%	1,286,538.19	$ 6,067.93	1.12	$ 5,417.80
4454	1,507,895.33	1.35%	1,623,253.44	$ 7,102.32	0.97	$ 7,321.98
SWR Total	**10,941,174.20**	**9.78%**	**11,778,203.92**	$ 11,939.51	**1.52**	**$ 7,854.94**
South Central Region						
4551	5,227,168.83	4.67%	5,627,061.53	$ 30,141.61	1.79	$ 16,838.89
4552	2,737,832.17	2.45%	2,947,283.81	$ 10,946.78	1.62	$ 6,757.27
4553	2,935,367.32	2.62%	3,159,930.94	$ 8,454.04	1.88	$ 4,496.83
4554	2,039,082.75	1.82%	2,195,078.15	$ 8,974.25	1.119	$ 8,019.88
SCR Total	**14,806,720.79**	**13.24%**	**15,939,475.38**	$ 14,837.08	**1.63**	**$ 9,102.50**
Eastern Region						
4651	3,617,899.97	3.23%	3,894,679.20	$ 11,278.87	2.16	$ 5,221.70
4652	2,654,804.08	2.37%	2,857,903.85	$ 6,556.97	1.13	$ 5,802.63
4653	3,611,846.97	3.23%	3,888,163.13	$ 11,559.27	1.35	$ 8,562.42
4654	3,131,346.28	2.80%	3,370,902.83	$ 7,488.44	1.09	$ 6,870.13
ER Total	14,512,614.78	**12.98%**	**15,622,869.46**	$ 9,965.60	**1.36**	**$ 7,327.65**
Statewide	**111,846,809.71**	**100.00%**	**120,403,396.22**	**$ 17,039.46**	**1.73**	**$ 9,849.40**

Notes:

1 M2 is all expenditures less Disaster Operations (40XX)

2 Region total includes all region expenditures to M2 (Operations, special crews, design, etc.)

3 Statewide total includes all region and Olympia Service Center expenditures

Fiscal Year 1996

Group 1

Inflation factor = 1.076502732

	Inputs			Outputs	Traffic	Indexed
Org Num	Group 1	% of state G5	Infl. 1999$$	$ per LM	Index	$ per LM
Northwest Region						
4151	513,043.30	2.59%	552,292.51	$ 1,328.61	2.03	$ 654.49
4152	910,893.56	4.59%	980,579.41	$ 1,565.72	1.87	$ 837.28
4153	835,401.31	4.21%	899,311.79	$ 1,624.09	2.98	$ 545.00
4154	747,928.66	3.77%	805,147.25	$ 775.33	2.85	$ 272.04
4155	1,020,920.76	5.15%	1,099,023.99	$ 991.89	3.86	$ 256.97
NWR Total	**4,042,869.14**	**20.39%**	**4,352,159.67**	$ 1,163.00	**2.64**	**$ 440.53**
North Central Region						
4251	874,110.21	4.41%	940,982.03	$ 1,455.79	1.35	$ 1,078.37
4252	615,586.82	3.10%	662,680.89	$ 777.31	1.65	$ 471.10
4253	1,194,954.72	6.03%	1,286,372.02	$ 1,321.52	0.92	$ 1,436.44
NCR Total	**3,030,797.34**	**15.29%**	**3,262,661.62**	$ 1,319.69	**1.26**	**$ 1,047.37**
Olympic Region						
4351	1,552,805.04	7.83%	1,671,598.87	$ 1,714.20	2.58	$ 664.42
4352	849,129.35	4.28%	914,090.07	$ 1,631.55	2.42	$ 674.20
4353	1,031,108.61	5.20%	1,109,991.24	$ 2,550.66	1.45	$ 1,759.08
4354	980,525.68	4.95%	1,055,538.57	$ 1,204.46	1.59	$ 757.52
OR Total	**4,419,378.92**	**22.29%**	**4,757,473.48**	$ 1,671.08	**2.04**	**$ 819.16**
Southwest Region						
4451	726,683.99	3.66%	782,277.30	$ 823.47	2.34	$ 351.91
4452	690,054.68	3.48%	742,845.75	$ 1,261.48	1.47	$ 858.15
4453	435,836.60	2.20%	469,179.29	$ 1,166.88	1.12	$ 1,041.86
4454	468,237.67	2.36%	504,059.13	$ 1,166.80	0.97	$ 1,202.89
SWR Total	**2,439,420.49**	**12.30%**	**2,626,042.82**	$ 1,106.67	**1.52**	**$ 728.07**
South Central Region						
4551	493,761.96	2.49%	531,536.10	$ 793.08	1.79	$ 443.06
4552	579,838.17	2.92%	624,197.37	$ 894.39	1.62	$ 552.09
4553	678,047.38	3.42%	729,919.86	$ 667.91	1.88	$ 355.27
4554	618,069.09	3.12%	665,353.06	$ 1,413.00	1.119	$ 1,262.73
SCR Total	2,375,162.51	11.98%	2,556,868.93	$ 872.10	**1.63**	**$ 535.03**
Eastern Region						
4651	814,456.65	4.11%	876,764.81	$ 853.16	2.16	$ 394.98
4652	803,331.35	4.05%	864,788.39	$ 1,001.72	1.13	$ 886.48
4653	845,123.41	4.26%	909,777.66	$ 1,093.04	1.35	$ 809.66
4654	866,622.45	4.37%	932,921.44	$ 1,056.54	1.09	$ 969.30
ER Total	**3,350,010.24**	**16.90%**	**3,606,295.18**	$ 1,000.00	**1.36**	**$ 735.29**
Statewide	**19,828,033.07**	**100.00%**	**21,344,931.77**	$ 1,187.64	**1.73**	**$ 686.50**

Notes:

1 Region total includes all region expenditures to M2 (Operations, special crews, design, etc.)

2 Statewide total includes all region and Olympia Service Center expenditures

Fiscal Year 1996

Group 3

Inflation factor = 1.076502732

Org Num	Inputs: Group 3	Inputs: % of state G5	Inputs: Infl. 1999$$	Output: $ per acre	Annual Precip.
Northwest Region					
4151	214,053.44	3.10%	230,429.11	$ 75.25	35.55
4152	255,553.34	3.70%	275,103.87	$ 60.24	36.82
4153	370,979.38	5.37%	399,360.32	$ 123.83	44
4154	387,351.14	5.61%	416,984.56	$ 120.00	54.54
4155	941,294.47	13.63%	1,013,306.07	$ 319.55	51.56
NWR Total	**2,240,179.28**	**32.43%**	**2,411,559.12**	$ 137.80	**46.73**
North Central Region					
4251	124,149.85	1.80%	133,647.65	$ 35.93	11.39
4252	167,317.65	2.42%	180,117.91	$ 36.07	9.49
4253	149,846.60	2.17%	161,310.27	$ 19.01	9.92
NCR Total	**486,443.31**	**7.04%**	**523,657.55**	$ 30.45	**11.78**
Olympic Region					
4351	576,034.86	8.34%	620,103.10	$ 172.73	53.27
4352	312,527.14	4.52%	336,436.32	$ 107.66	60.7
4353	284,328.93	4.12%	306,080.87	$ 91.29	35.21
4354	310,676.30	4.50%	334,443.89	$ 110.30	96.67
OR Total	**1,558,587.88**	**22.56%**	**1,677,824.11**	$ 128.08	**61.46**
Southwest Region					
4451	317,138.26	4.59%	341,400.20	$ 90.75	64.43
4452	166,650.05	2.41%	179,399.23	$ 52.33	64.63
4453	186,540.95	2.70%	200,811.84	$ 72.03	100.3
4454	133,332.56	1.93%	143,532.87	$ 47.50	29.57
SWR Total	**837,234.63**	**12.12%**	**901,285.37**	$ 69.33	**64.73**
South Central Region					
4551	92,795.52	1.34%	99,894.63	$ 31.45	12.49
4552	204,409.64	2.96%	220,047.54	$ 48.10	14.78
4553	250,597.79	3.63%	269,769.21	$ 42.88	13.66
4554	138,336.11	2.00%	148,919.20	$ 35.82	19.45
SCR Total	**710,669.66**	**10.29%**	**765,037.83**	$ 42.04	**13.64**
Eastern Region					
4651	411,298.37	5.95%	442,763.82	$ 99.10	25.23
4652	91,351.14	1.32%	98,339.75	$ 17.56	19.7
4653	168,099.21	2.43%	180,959.26	$ 41.39	19.28
4654	240,865.94	3.49%	259,292.84	$ 63.85	22.35
ER Total	**956,761.71**	**13.85%**	**1,029,956.59**	$ 55.67	**22.29**
Statewide	**6,908,246.76**	**100.00%**	**7,436,746.51**	**$ 76.27**	**36.77**

Notes:

1 Region total includes all region expenditures to M2 (Operations, special crews, design, etc.)

2 Statewide total includes all region and Olympia Service Center expenditures

Fiscal Year 1996

Group 5

Inflation factor = 1.076502732

	Inputs			Outputs	Traffic	Indexed	Weather
Org Num	Group 5	% of state G5	Infl. 1999$$	$ per L M	Index	$ per LM	Index
Northwest Region							
4151	714,958.25	3.49%	769,654.51	$ 1,851.50	2.03	$ 912.07	17.26
4152	526,511.75	2.57%	566,791.34	$ 905.01	1.87	$ 483.96	24.66
4153	523,306.23	2.55%	563,340.59	$ 1,017.35	2.98	$ 341.39	23.51
4154	580,125.24	2.83%	624,506.41	$ 601.38	2.85	$ 211.01	27.73
4155	501,098.24	2.45%	539,433.62	$ 486.85	3.86	$ 126.13	28.08
NWR Total	**2,856,495.01**	**13.94%**	**3,075,024.68**	$ 821.72	**2.64**	**$ 311.26**	**24.25**
North Central Region							
4251	1,780,958.58	8.69%	1,917,206.78	$ 2,966.11	1.35	$ 2,197.12	1.01
4252	528,337.28	2.58%	568,756.53	$ 667.14	1.65	$ 404.33	0.11
4253	1,448,439.17	7.07%	1,559,248.72	$ 1,601.86	0.92	$ 1,741.15	7.79
NCR Total	**3,932,266.65**	**19.19%**	**4,233,095.79**	$ 1,712.21	**1.26**	**$ 1,358.90**	**0.38**
Olympic Region							
4351	485,820.29	2.37%	522,986.87	$ 536.32	2.58	$ 207.87	28.53
4352	259,022.33	1.26%	278,838.25	$ 497.70	2.42	$ 205.66	27.6
4353	385,115.10	1.88%	414,577.46	$ 952.66	1.45	$ 657.01	27.68
4354	281,227.68	1.37%	302,742.37	$ 345.46	1.59	$ 217.27	28.84
OR Total	**1,411,350.80**	**6.89%**	**1,519,322.99**	$ 533.67	**2.04**	**$ 261.60**	**28.16**
Southwest Region							
4451	407,611.30	1.99%	438,794.68	$ 461.90	2.34	$ 197.39	21.25
4452	917,745.05	4.48%	987,955.05	$ 1,677.71	1.47	$ 1,141.30	26.03
4453	246,628.74	1.20%	265,496.51	$ 660.31	1.12	$ 589.56	22.25
4454	412,734.56	2.01%	444,309.88	$ 1,028.50	0.97	$ 1,060.30	7.56
SWR Total	**2,008,716.50**	**9.80%**	**2,162,388.80**	$ 911.27	**1.52**	**$ 599.52**	**19.27**
South Central Region							
4551	3,278,611.14	16.00%	3,529,433.85	$ 5,266.08	1.79	$ 2,941.95	-23.64
4552	924,021.86	4.51%	994,712.06	$ 1,425.29	1.62	$ 879.81	0.08
4553	974,162.89	4.75%	1,048,689.01	$ 959.60	1.88	$ 510.43	18.5
4554	587,242.99	2.87%	632,168.68	$ 1,342.53	1.119	$ 1,199.76	5.9
SCR Total	**5,811,794.14**	**28.36%**	**6,256,412.27**	$ 2,133.95	**1.63**	**$ 1,309.17**	**0.21**
Eastern Region							
4651	1,170,646.35	5.71%	1,260,203.99	$ 1,226.27	2.16	$ 567.72	-3.6
4652	848,429.90	4.14%	913,337.11	$ 1,057.96	1.13	$ 936.25	3.63
4653	1,066,248.55	5.20%	1,147,819.48	$ 1,379.03	1.35	$ 1,021.50	-5.44
4654	1,325,143.29	6.47%	1,426,520.37	$ 1,615.54	1.09	$ 1,482.15	-3.78
ER Total	**4,412,326.88**	**21.53%**	**4,749,881.94**	$ 1,317.10	**1.36**	**$ 968.46**	**-2.3**
Statewide	**20,492,632.14**	**100.00%**	**22,060,374.48**	**$ 1,227.45**	**1.73**	**$ 709.51**	**11.67**

Notes:

1 Region total includes all region expenditures to M2 (Operations, special crews, design, etc.)

2 Statewide total includes all region and Olympia Service Center expenditures

Chapter 8

Field Data Collection

Field Condition Surveys

An integral part of the Maintenance Accountability Process (MAP) is regular field condition surveys conducted on the highway system. The surveys assess the results (outcomes) of maintenance service delivery that exist at a given point in time. The results of these surveys can then be used to identify trends of the condition of the highway, associated facilities and systems from year to year.

Data Collection Procedures

1. Statistical methods are used to identify approximately 450 randomly selected sites from the approx. 7,000 centerline miles of state highway inventory from around the state. Each site is a 0.10 mile section (528 feet). All highway features that fall within the sample section are evaluated. The data collected from this number of sites provides a level of precision of over 95% for most activities.

2. Sampling is conducted twice per year, spring and fall, for most maintenance activities. Since the service delivery for maintenance activities vary somewhat throughout the year, the twice a year sampling provides some indication of the limits of service level variability.

3. The number of samples is determined by statistical methods, based on the population of any given feature.

4. Data Collection Forms, shown on the following pages, are utilized to record data by field survey crews.

MAP Field Data Collection Form

Site Number: | SR : | SRMP: | Region | Area: | ☐ Moved

Taken By: | Date: | ☐ QAQC

NUMBER OF LANES

Total Number of Lanes:

PAVEMENT - Traveled Lanes

Potholes
Square Feet of Potholes:

Rutting
Total Number of Ruts ≥ 3/4":

Alligator Cracking
Sq. Ft. of Alligator Cracking:

Cracking
Lin. Ft. of Longitudinal Cracking:
Lin. Ft. of Transverse Cracking:

Humps, Sags And Settlements
Sq. Ft. of Deficiencies:

PAVED SHOULDER

Total Width of Paved Shoulders:

Shoulder Potholes
Sq. Ft. of Shoulder Potholes:

Shoulder Alligator Cracking
Sq. Ft. of Alligator Cracking:

Shoulder Cracking
Lin. Ft. of Longitudinal Cracking:
Lin. Ft. of Transverse Cracking:

Shoulder Edge Raveling
Lin. Ft. of Edge Raveling:

Shoulder Edge Drop-Off
Lin. Ft. of Edge Drop-Off ≥ 2":

Shoulder Sweeping/Cleaning
Lin. Ft. of Shldr. Debris Build-Up:
Width of Shldr. Debris Build-Up:

Shoulder Humps, Sags And Settlements
Sq. Ft. of Deficiencies:

1x 528	6x 3168
2x 1056	7x 3696
3x 1584	8x 4224
4x 2112	9x 4752
5x 2640	

DRAINAGE

Ditches
Linear Feet of Ditches:
Linear Feet of Ditch ≥ 50% Full:

Culverts
Number of Culverts:
Number of Culverts Deficient:

Catch Basins - Inlets
Number of Basins / Inlets:
Num. of Deficient Basins / Inlets:

Slope Failures
Number of Slope Failures:

ROADSIDE

Total Width of Roadside:

Noxious Weeds
Sq. Ft. of Noxious Weeds:

Nuisance Vegetation
Sq. Ft. of Nuisance Vegetation:

Vegetation Obstructions
Num. of Vegetation Obstruction2:

Litter
Number of Pieces of Litter:

TRAFFIC

Raised / Recessed Pavement Markers
Num. of Raised Pvmt. Markers:
Num. of Markers Worn/Missing:

Pavement Markings
Number of Pavement Markings:
Number of Markings Worn:

Guideposts
Number of Guideposts:
Num. of GPs Broken/Damaged:

Guardrail
Lin. Ft. of Guardrail:
Lin. Ft. of Guardrail Damaged:

MAP Field Data Form - EF Revised 9/2003

MAP Bridge Data Collection Form

Bridge Information

Bridge Number: _____ Sr: _____ SRMP: _____ Region: _____ Area: _____

Taken By: _____ Date: _____

Bridge Size

Bridge Length: _____

Bridge Width: _____

Bridge Deck

Sq. Ft. of Spalling: _____

Decks and Sidewalks

Sq. Ft. of Sand/Debris: _____

Graffiti

% of Surface Dirty:

- ☐ None 0%
- ☐ Minor 1-10%
- ☐ Moderate 11-30%
- ☐ Major 31-50%
- ☐ Significant >50%

Instructions

Record the bridge number found on the bridge or on the WSDOT Bridge List. Record the state route, milepost, region, area, names of inspection team members, and date.

Bridge Size: Measure and record the length and width of the bridge.

Bridge Deck: Calculate and record the total square feet of spalling at least 6"x 6" on the bridge deck.

Decks and Sidewalks: Calculate and record the total square feet of sand and debris on the bridge deck and sidewalk.

Graffiti: Estimate and record the percent of bridge surfaces that are covered with graffiti.

Record List | Menu

MAP Snow & Ice Data Collection Form

Site Number: | **SR:** | **Begin MP:** | **End MP:**

Date: | **Time:** | **Name:**

Roadway Treatment: Outcome of Sanding or Deicer/Anti-Icing treatments
Condition Indicator: Presence of traction due to bare pavement from deicer or anti-icing chemical application or presence of sand (60% or more of the traveled lane) on an icy surface. Emphasis areas are defined in the Maintenance Manual to include bridges, hills, curves, and intersections.

Treatment Type:
Select one

- ○ Deicer/Anti-Icer Treatment
- ○ Sand Treatment
- ○ No Treatment

Traction Condition:
Select one

- ○ 100% bare due to deicer/anti-icer or entire area sanded
- ○ Emphasis areas & 50% or more of remaining area
- ○ Emphasis areas only
- ○ 50% or more of emphasis areas
- ○ Less than 50% of emphasis areas

Comment:

Instructions

Sample time period is 5:00am to 9:00am twice weekly (assigned day and floating day).

Fill out this form **only** when a measurable condition exists at the time of the survey. A measurable condition is defined as icing conditions (freezing temperatures with moisture) or snow and ice are present on the roadway.

If a measurable condition exists at the time of the survey record the ***Site Number***, ***Date***, ***Time***, and the ***Name*** of the surveyor. The ***SR***, ***Begin MP***, and ***End MP*** should be recorded if you are completing a paper form. If you are using the electronic form these fields will be completed automatically based on the site number you enter.

Select a traction control ***Treatment Type***. If both sand and deicer are present on the roadway select the treatment that is most responsible for maintaining positive traction. If no treatment has been made select **No Treatment**

Select a ***Traction Condition*** that best describes the outcome of the traction control treatment.

Questions?

Contact Anna Zaharris at **(360) 705-7813** or by email at **zaharra@wsdot.wa.gov**

Revised 10/22/2001